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MACHINERY FOR DRESSING FLAX.

Improvement in Dressing Flax.

Within the past few years the genius of inventors has been greatly stimulated, to make improvements in dressing flax, as the expense of preparing it for spinning is indeed the principal reason why linen is so dear in comparison with cotton when made into goods. Of the many inventions heretofore presented to the public, the annexed engravings represent an improvement, for which a patent was granted to E. L. Norfolk, of Salem, Mass., on the 9th of May last.

Fig. 1 is a longitudinal vertical section of a machine having the improvements, and fig. 2 is a plan of the same; fig. 3 is a plan of part of the apparatus which regulates the feed; fig. 4 is a perspective view of one of the regulating trunks, and fig. 5 is a longitudinal vertical section of the same. Similar letters of reference indicate corresponding parts in each of the several figures.

The invention consists in a certain device for regulating the movements of the rollers which supply the flax to the machine, whereby the said rollers are made to feed the material at a speed corresponding inversely with the quantity passing between them, or to stop entirely when the quantity become so great as to render a stoppage necessary. The working parts of the machine are all supported by the frame, A, and receive motion from the driving shaft, B. In this machine only two toothed cylinders, C and D, are used, the first of which, C, revolves at a comparatively slow speed, and is placed in suitable bearings between the pair of drawing rollers, E E, and the two pairs of feed rollers, F F, all of which are hung in suitable bearings, parallel with it, and as close as practicable to the points of its teeth. The peripheries, F F, revolve at about one-sixth of the speed of the points of the teeth of the cylinder, C, and those of the drawing rollers, E E, at the same, or a little greater speed than the points of the said teeth. The second toothed cylinder, D, is placed in suitable bearings between a pair of feed rollers, F′ F′, and a pair of drawing rollers, E′ E′, which are also hung in suitable bearings, and revolve at about the same speed, in relation to the points of its teeth, as the first-named feed and drawing rollers do to the teeth of the first cylinder. The feed rollers, F′ F′, must revolve at the same speed, or faster than the drawing rollers, E E, hence the points of the teeth of D will revolve at about six times the speed of those of C. The feed rollers, G G G, which supply the flax in the first instance to the machine, are in six sets; but any number of sets may be used, each hung in independent bearings; there are three rollers in each set, and they receive an intermittent rotary motion by the following means: on the lowest rollers of each set is a toothed wheel, *a*, into which gears an endless screw, *b*, near the upper end of an upright shaft, *c*, which works in bearings in a cross-piece, H, at the top, and a support, I, at the bottom; this shaft carries, near its lower end, a toothed wheel, *d*, which gears into the teeth, *e*, on the face of one of six

Fig. 3

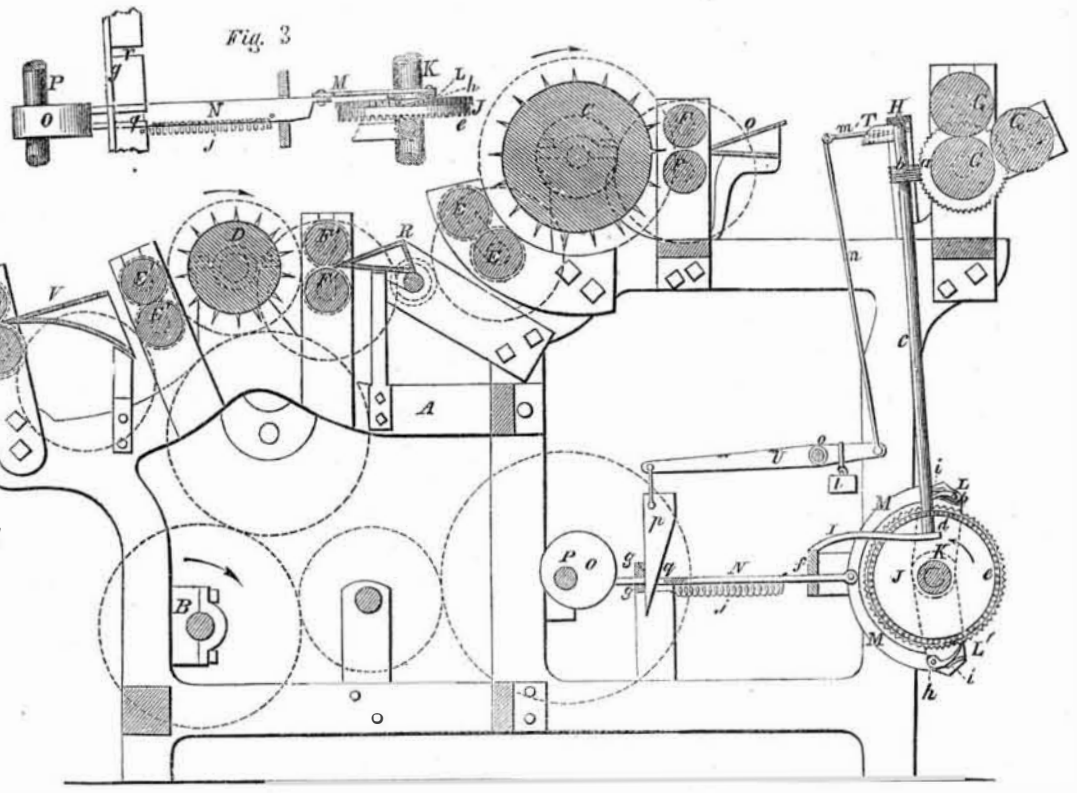

Fig. 1

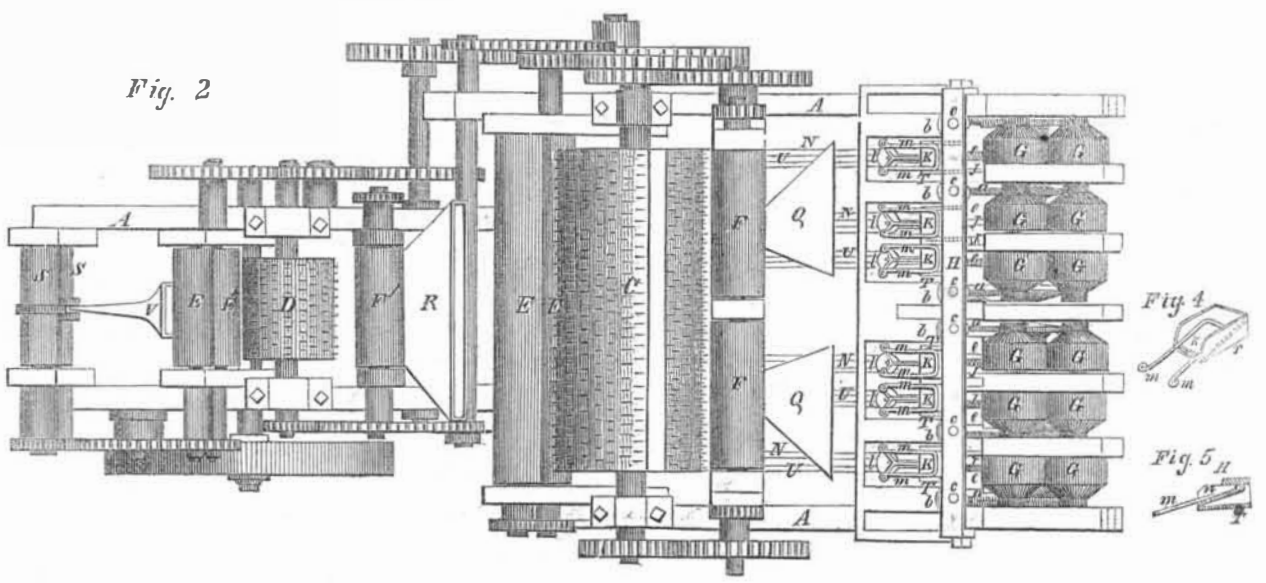

Fig. 2

Fig. 4

Fig. 5

wheels, J (of which one is for each set of feed rollers) which are all hung loosely on a horizontal shaft, K. Each of the wheels, J, in addition to teeth, *e*, on its face, has teeth on its periphery, and the last-named teeth are engaged by two parts, *h h*, attached to the short levers, L L′, both working loosely on the shaft, K, as a fulcrum; these levers are connected by two curved links, M M, which partly encircle the shaft, K, to a bar, N, which slides freely in horizontal guides, *f* and *g*, one lever occupying a position above and the other below the shaft, and the pawls, *h h*, being so arranged that when a horizontal reciprocating motion is given to the bar, N, the levers will cause the pawls to act alternately to turn the wheel in the direction of the arrow shown on it in fig. 1, as the bar moves in the opposite directions, the pawls being always kept in working position by springs, *i i*. The reciprocating movement of the bar, N, necessary to work the levers and pawls, is given by means of six eccentrics, O, (of which one is for each set of feed rollers) on a shaft, P, which receives motion through gearing from the main shaft, and a spring, *j*, which is connected to the bar, N, and to the guide, *g*; the bar being forced back or towards the wheel, J, by the eccentrics, and being drawn forward against a suitable stop, which will be hereafter described, by the spring, *j*. The intermittent rotary motion of the wheel, J, gives a similar motion to the upright shaft, *c*, and by it is communicated to the rollers, G G G, at a greatly reduced speed. The speed of the revolution of the shaft, P, is such that the revolution given to the feed rollers, G G G, is much slower than that of the rollers, F F, as the latter, in addition to serving as feed rollers to the cylinder, C, serve as drawing rollers, and give the first draw to the fibers. The position of the several eccentrics on the shaft, P, should be such, that they will cause the intermittent movements of the rollers, G G G, to commence successively, and not all at once, to insure greater regularity in the aggregate feed. The quantites of fiber delivered by the several sets of rollers, G G G, are collected into two larger quantities, by passing through two funnels, Q Q, one behind each pair of rollers, F F, and so collected, are fed by the latter rollers to the drawing rollers, E E, by which they are drawn out. During the drawing operation the toothed cylinder, C, opens and separates the fibers, combs, (or lays them straight and parallel,) and takes out all the tow. After leaving the drawing rollers, E E, the fibers are conducted through a funnel, R, which collects them all in one quantity, and so collected conducts them to the rollers, F′ F′, which feed them to the next pair of drawing rollers, E′E′, by which they are again drawn out. During the second drawing the fibers are submitted to the operation of the second toothed cylinder, D, which repeats the operation of the cylinder, C. From the rollers, E′ E′, the material is delivered into another funnel, V, by which they are condensed from the form of a thin flat sheet into a sliver, and conducted between two rollers, S S, which compress them together and deliver them in a condition for roving. The combination of the toothed cylinders C and D, and the rollers, E E and E′ E′, and F F and F′ F′, is found to effect the separating, straightening, drawing out, and cleaning of the fibers with an extraordinary degree of perfection and rapidity; and by separating the feed which supplies the machine in the first instance, and then drawing, and afterwards doubling repeatedly, the sliver is made of comparatively uniform thickness; but, in order to make the uniformity perfect, it is necessary to equalize in the greatest possible degree, the feed from each set of rollers, G G G; and for this purpose I employ the trunks, T, one for each set of rollers, placed as close as possible in front of the rollers, and open at the back and front, to allow the free passage of the flax. The trunks are attachnd to the cross-piece, H, and each is furnished with a mouth-piece or lid, *k*, which is hinged at its back end, at the upper part of

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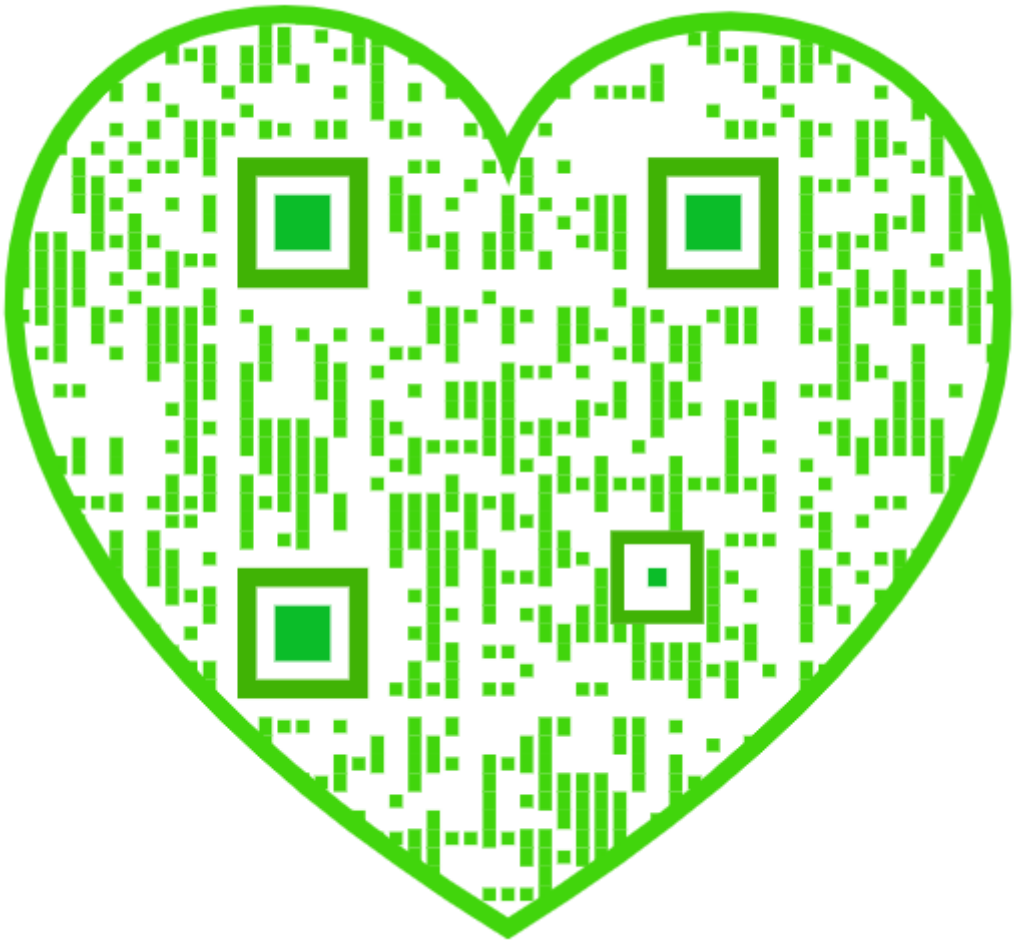

the back of the trunk, and has its front end resting upon the bottom of the trunk, or upon whatever is placed therein or passing through it—resting therefore upon the flax. A weight, *l*, is suspended from the end of a pair of arms, *m m*, which stand out from the front of the lid or mouth-piece; and this weight causes the flax to be tightly compressed in the trunk. The arms, *m m*, are connected by a rod, *n*, to the shorter arm of a lever, U, of the first order, which works upon a fixed fulcrum, *o*, the longer arm of the said lever having a wedge, *p*, suspended from it, which wedge constitutes the stop before alluded to for arresting the forward motion of the bar, N. The wedge, *p*, works in a slot, *q*, in the forward end of the said bar, passes through a slot, *r*, in the guide bar, *g*, and rests against the back side of the front part of the said guide bar, which, as will be seen by reference to fig. 1, is of angular form. The bar, N, is arrested in its forward motion by the back part of the slot, *r*, coming in contact with the wedge, the hight of which will therefore regulate its movement. When the wedge is raised so that its point only enters the slot, it will not arrest the bar at all; and consequently the latter then receives the full throw of the eccentric; but when the broadest part of the wedge is in the slot, the bar is pushed so far back, that the eccentric will scarcely act upon it at all, or the wedge may be made broad enough to stop the movement of the bar, N, entirely, and thus stop the feed. The parts are so adjusted, that when the proper quantity is being fed through the trunks, the mouth-piece, *k*, will, by means of the arms, *m m*, rod, *n*, and lever, U, hold the wedge such a hight as to allow the bar, N, the proper movement necessary to give the feed rollers the required amount of motion every time they act, and should there be any increase in the quantity of feed, the mouth-piece will be raised, and cause the wedge to be depressed, and therefore lessen the length of the feed; the contrary effect being produced if the quantity of the feed decreases. The amount of the feed may be increased or decreased at pleasure, by altering the length of the rod, *n*, or by altering the distance of the wedge from the lever, U.

More information may be obtained of this invention by letter addressed to the patentee, at Salem, his place of residence.

Pennsylvania Coal for Gas.

"Up to the present time our Philadelphia Gas Works have been dependent, in a great degree, upon the collieries of England for their supply of material. The coal fields of Western Pennsylvania have not furnished an available substitute. This fact gives more than ordinary interest to the discovery of gas-producing coal in the immediate track of the Sunbury and Erie Railroad. We subjoin extracts from a report made by the Manhattan Gas Company, on the gas-producing qualities of this new Pennsylvania product, and an analysis of it, made by Dr. Chilton, of New York.

'Manhattau Gas Company, of New York, 14th June, 1854. Charged with McKean and Elk County coal, 150 lbs.:

Produced	1st hour,	145	feet gas.
"	2nd "	153	"
"	3rd "	155	"
"	4th "	127	"
"	5th "	69	"
		649	feet.

One tun of coal, 2,249 lbs., will produce 9,691 feet gas and 44 bushels coke of a superior quality, weighing 1,523 lbs.'

Analysis for the McKean and Rochester Coal Co., by James R. Chilton, M. D., New York.

'Fixed Carbon,	58·87
Bitumen,	33·21
Water,	4·10
Ashes,	3·82
	In 100 parts.'

'This is a remarkably good quality of coal. It yields a good substantial coke, and, in its mode of burning, closely resembles the best kind of Liverpool coal. The proportion of sulphur in the sample analyzed was very small.'"

[The above is from the "U. S. Gazette," Philadelphia. We are glad to know that Pennsylvania has such excellent gas-producing coal, but we must say that the analysis of Dr. Chilton rather puzzles us. What is meant by "bitumen" is difficult to tell, and affords no satisfaction whatever respecting its gas producing qualities; in fact, it affords poor consolation for the character of the coal in the manufacture of gas, for it simply means, that only 33 per cent. of the coal, will produce as much gas as an equal quantity of bitumen.

We saw some experiments made about ten years ago, with Pennsylvania bituminous coal, in making gas, which were very satisfactory, but the coal is not equal to good cannel by any means for producing it.

[For the Scientific American.]

Electricity as a Motive Power.

Your correspondent, P. Vergnes, on page 331, seems to think that this subject is but imperfectly understood, and that it requires the aid of algebra to solve the practicability of Electro-magnetism as a prime mover. To both of which I yield my partial assent; at the same I think, that he, even, with the aid of algebra, has failed to throw much more light on the subject than we previously possessed. I agree that it is important that this subject should be solved, and I would ask M. Vergnes, if it has not been solved for three years, by the failure of Prof. Page's Engine? I believe that that failure has (at least for the present) decided that question in the negative. Prof. Page failed, as I at the time predicted (Vol. 7, page 91 "Sci. Am.") and for the reasons I then pointed out. I do not believe, as M. Vergues appears to do, that electricity will ever be profitably applied as a motive power, except by the intervention of electro-magnets; my reason for believing so is, that Nature invariably employs electro-magnets whenever she employs electricity for the purpose of producing motion.

The animal is the most perfect electro-magnetic machine extant, and if art ever succeeds in making one as perfect as these natural electric machines, it will have accomplished all that is possible. I think I can throw the most light on the subject by pointing out some of the differences between the natural and the artificial electric machines.

The three cardinal principles of a natural machine are carbon, air, and globular electro-magnets; and of an artificial one, metal (zinc), acid (sulphuric), and a horse-shoe, or cylindrical electro-magnets. By a beautiful, but I confess by me not fully understood, economy of nature, the carbon is so prepared that it very readily combines with the oxygen of the air, and the latter, by so combining, parts with its electricity, which is conveyed by means of the braiu and the nerves to the muscle (electro-magnets), there producing, at the command of the will, animal motions. It may well challenge the chemist's attention to discover the *modus operandi* of the above-named change which the carbon sustains, brought about by such feeble acid. It is remarkable that carbon, which, with our present chemical knowledge, is acted upon with so much difficulty even with the strongest acids, is by means of the respirative organs and the air, brought to the highest state of oxydation, forming carbonic acid.

Yet, after after all, these important considerations, the globular shaped magnets challenge our greatest admiration, as I have before stated (page 315, Vol. 7, "Sci. Am."), and in addition to what I then said, I may say that Nature, by means of her minute and numerous globular magnets, gives an answer to your correspondent's "more serious reasoning,"—these numerous magnets are instantly brought to complete "saturation," which gives a complete refutation to his assertion that "magnets cannot be increased without disappointment." It makes no difference to Nature whether the machine is large or small, she obtains the same per cent. of power from a given quantity of electricity. I venture to say, that the elephant and the fly are, relatively speaking, of equal strength.

Take 100 common iron beads, and string them on a silk thread in such a manner that they do not touch each other, say the thirty-second part of an inch apart; hang the string thus formed in a convenient position, and you will find that the moment you touch the ends of the silk thread with the conductors of a galvanic battery, that the whole string will contract; separate the thread and the "conductors," and they will fall to their first position. This experiment will be found both amusing and instructive to repeat often. Here we have a specimen of animal electro-magnetism, only that the animal has, instead of our one string and 100 beads, many hundreds of strings (fibers) and millions of beads (globules). and that instead of the globules being strung on a thread, they are incased in hollow tubes (fibers) and connected with spinal flexible electric conductors (nerves.) Who will be the first to reproduce artificially one of these natural electro-magnets?

Yet after all, I may be permitted to ask, will ever electro-maguetism supersede steam? It is my opinion that electro-magnetic power can never be produced cheaper than horse-power, inasmuch as horse-power is in reality nothing else but electro,magnetism. Still I believe that if artificial electro-magnetism ever attains the perfection that we find in nature, that it will be used for purposes for which it would be impossible to employ steam. If it ever attains perfection, it can be employed for navigating the air, for which purpose steam is totally unsuited on account of its weight.

J. F. Mascher.

Philadelphia, 1855.

Artificial Ice---The South.

Messrs. Editors—It would be a great favor to myself, as well as to thousands in the interior of the South, if you, or some other gentleman of science, will, through the columns of your extended journal, make known a practical way of making ice artificially, either through chemical or mechanical means.

What has become of the machine patented about two years ago by D. Gorrie, of New Orleans, which was propelled by a steam engine, and in an experiment tried "froze several bottles of sherry, and produced ice of a cubic foot when the thermometer stood at 80° ?"

This information, if imparted and promulgated, would not injure the ice trade of the North, which will always monopolize, with increased prosperity, the commercial marts and thoroughfares of the South, but would prove of vast value only to the interior of the South among the thousands cut off entirely from all commercial facilities, as for instance the interior of Louisiana or Texas, where I expect soon to locate, hence my peculiar personal interest in the matter.

S. S. Rembert.

Memphis, Tenn. July 12, 1854.

[We do not know of any feasible plan for producing ice artificially except at an expense so great as to preclude its manufacture for common purposes. If there was any person in our country who could make ice ecomically, he would not be at a loss where to go make his fortune.

Inventors and Inventions.

Messrs. Editors.—Wishing to open a short correspondence with you, I will do so by following your instructions—to be brief and come right to the point without an apology.

I am an inventor—theoretically at least—and I think a very successful one. But want of means has prevented me from getting any of my numerous inventions patented, and also from putting them in practice.

Now the question is, how shall I, (in indigent circumstances, and not much acquainted with business matters,) dispose of my valuable stock of patentable ideas, and useful inventions, so as to turn them into cash, or its equivalent.

Yours, N. C.

W———, N. Y., July 12, 1854.

[We have received, from time to time a great number of letters similar in import to the above, and an answer to this one will save much trouble to those who might hereafter—like the present correspondent—seek our advice. We advise him to concentrate his ideas, and perfect one of his inventions, patent it, then devote his energies to introduce it, and thereby realize means to complete his other inventions, so as to obtain a justly deserved remuneration from them. If his inventions are really useful, a favorable result may reasonably be anticipated if he follows our advice. It is scarcely possible to find any person who will advance means to assist an inventor in perfecting his improvements.

The public are suspicious of unpatented inventions, therefore the most wise course for any inventor to pursue, is to secure his invention by patent, and thus obtain something tangible for sale, and full protection for its use. Every effort of industry and economy should be made for this purpose; it is the only rational plan to pursue—the best advice we can give. No inventor can pursue a more unwise course for himself than to study over an indefinite number of improvements without perfecting a single one of them. He never will accomplish any good for himself or for others by such conduct. Let every inventor finish one invention before he commences another, and by so doing he may be sure of success.

Indian Relics.

We have received from Henry F. Baker, of Centerville, Ind., drawings of four peculiarly-shaped stones which were recently found in an Indian mound on the banks of the White Water, near where he resides. They are finely polished, he says, and resemble petrified wood. One of them is shaped like a double hatchet, and another like a single hatchet, but the other two have no resemblance to any tool or trinket within the scope of our knowledge. Two of the stones are perforated with a single hole each, and the others with two tapering holes. A number of human bones were found along with them, thus showing that the mound was a warrior's cairn. An old gentleman living in the above-named place—a Free Mason—and high advanced in the Order, claims them as jewels of the craft worn not less than five thousand years ago. This is pretty good; he knows, at least, better than we do, to what uses they were applied, and he no doubt would be excellent authority to consult on the ancient races of our continent.

Improvement in Rolling Railroad Bars.

We learn by our cotemporary, the "Miner's Journal," Pottsville, Pa., that Mr. Harris of that place, has recently made some very valuable improvements in rolling railroad iron; which are thus described:

"By the (present) plan, each pair of rolls has nine separate grooves, through which the heated mass from the furnace is successively passed, until it is delivered from the last in the shape of a railroad bar.

Now, instead of the one set of rolls containing the nine grooves; by the new process, there are nine separate pairs of rolls, each having but one groove—arranged in one continuous line, with close ducts or boxes between; so that the "pile" (the hot ball of metal) is fed in at one end, and comes out at the other a railroad bar!"

This new arrangement of the rolls, is exactly like those of the drawing rollers in cotton spinning each succeeding pair, moving with an increased velocity. The advantages of these improvements are appreciable at a glance, and we believe are entirely new, although we have read that Arkwright received his first idea of spinning by rollers from machinery employed in the manufacture of iron bars, but which, so far as we have seen, was not arranged like that of Mr. Harris.

New Plating Apparatus.

Robert G. Pine, of Newark, N. J., has applied for a patent for an apparatus for plating which is worthy of attention. He places the article to be plated upon an elastic bed and within a female die, constructed of sheet metal, and corresponding in its form to that of the article in hand. Directly above the bed is a male die. This is forced down, while heated, upon the article, so as to fuse the solder. The foil is placed directly over the female die, and is united to the surface intended to be plated by the male die's pressure, facilitated by the heat, which is an indispensable agency in this important and profitable process of the art of embellishment.

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Scientific Memoranda—American.

Remedy for Plant Lice.—Mr. E. G. Mygatt, of Illinois, offers through the Germantown "Telegraph," the following remedy for plant lice, so destructive in the early part of the season. We commendit to our friends for a trial:

"If you have any species of the aphis in your nursery, please to make a trial of the following decoction;—Get froma druggist 1-2 lb. of Quassia; boil it fifteen minutes in six quarts of water; pour off the decoction into a dish-pan with handles. When cool, get an assistant to hold the pan while you carefully bend down and immerse the branches—giving them a little motion to wet all the insects. Look at the trees two days after, and if the aphides are dead, and the tender shoots uninjured, use and recommend the Quassia and let the whale oil soap perform some other office.

For young and tender buds or grafts, I use the spray from a nearly spent syringe where it is not safe to bend them over the pan."

To Destroy Vermin on Animals and Trees.—G. W. Kendall, one of the Editors of the New Orleans "Picayune," in his letter from Paris to that Journal, gives the subjoined recipe for destroying vermin on animals, plants and trees. This remedy is simple, easy of application, and worthy of at least a trial:

"The celebrated Raspail, well known as one of the best French chemists, has given an important recipe for destroying vermin on animals, and also on plants and trees—important, at least, if true. The process he recommends is to make a solution of aloes—one gramme of that gum to one litre of water, French measure—and, by means of a large brush, to wash over the trunks and branches of trees with this solution. This simple process, says Raspail, will speedily destroy all the vermin on the trees, and will effectually prevent others from approaching. In order to clear sheep and animals with long hair, they must be bathed with the solution, or well washed with it.—Raspail mentions several trials he has made with this mixture, all of which has been attended with the most complete success: and he recommends it very strongly for general use. I can only say that if a simple solution of aloes and water will kill or drive away ants from peach and other trees in Texas and other parts of the South, the discovery will be hailed with pleasure. At all events there is no harm in trying the experiment. A French litreis a little less than three of our pints—a gramme is the five-hundredth part of a French pound.—A little aloes, if used at all, will thus go a great way. Were I troubled with ants and other vermin in Texas, I should certainly try Raspail's solution."

The Rose Bug.—The Philadelphia "Ledger" says, "this insect often, in a few days, destroys all promise of roses for the season.—They appear in such numbers that I have counted from 50 to 100 on a single flower or bud, destroying it entirely in less than an hour. They are also disposed to attack the leaf of the grape-vine, and in some districts they extend their ravages to the apple, the cherry, and the plum.

They come out of the ground about the second week in June, and in some localities in July, and remain from a month to six weeks; at the end of that period the males fall to the earth and perish; but the females make their way into the earth again, where they remain for a while to deposit their eggs, and die soon after they return. The number of eggs is generally from 25 to 50, they are globular, and about 1-30 of an inch in diameter. The young larvæ feed upon all tender rootlets that come within their reach. At the approach of frost they descend below its influence, pass the winter in a state of torpor, and in the spring approach the surface of the earth again, when they are transformed into a pupa, and in the month of June and July they are turned into a beetle and make their way to the surface of the earth again.

From the foregoing brief notice of this destructive insect, it will be seen how difficult, if not impossible, it is to destroy the race in its incipient state; the attack, if any, must be made upon them in their most perfect form. Various methods having been proposed, but as all are troublesome, and only partial in their effects, we will take the liberty of suggesting a process which we are persuaded will be found effectual.

When the rose-bug first makes its appearance, sprinkle your bushes profusely with the pollin of the flower of the Ailanthus tree, or pour upon the bushes through a watering pot, a strong decoction of the same. You will presently see hundreds of the bugs falling to the ground, there to die. The operation may be repeated once or twice a day, until they entirely disappear, which generally takes place in less than a week."

[Perhaps Quassia or a solution of aloes, may answer as well as the pollin of the ailanthus; the experiment at least can be easily tried.—The rose-bug is now busy with the grape vine, and close attention should be paid to destroy them. Those who have grape vines should not forget that vigilance is the price of grapes.

How to keep gathered Fruit and Flowers always fresh.—A friend has informed us that fruit and flowers may be preserved from decay and fading by immersing them in a solution of gum-arabic in water two or three times, waiting a sufficient time between each immersion to allow the gum to dry. This process covers the surface of the fruit with a thin coating of the gum, which is entirely impervious to the air, and thus prevents the decay of the fruit, or the withering of the flower. Our friend has roses thus preserved, which have all the beauty and fragrance of freshly plucked ones, though they have been separated from the parent stem since June last. To insure success in experiments of this kind, it should be borne in mind that the whole surface must be completely covered; for if the air only gains entrance at a pin hole, the labor will be all lost. In preserving specimens of fruit, particular care should be taken to cover the stem, end and all, with the gum. A good way is to wind a thread of silk about the stem, and then sink it slowly in the solution, which should not be so strong as to leave a particle of the gum undissolved. The gum is so perfectly transparent, that you can with difficulty detect its presence, except by the touch. Here we have another simple method of fixing the fleeting beauty of nature, and surrounding ourselves ever with those objects which do most elevate the mind, refine the taste, and purify the heart.—[Country Gentleman.

An artesian well has been bored at Cape May, 80 feet deep, which supplies excellent fresh water. This is considered a satisfactory test of the fact that good water can be procured on the sea shore by boring.

Foreign Scientific Memoranda.

Great efforts are now being made in England for the extension of telegraph lines under the waters of the Mediterranean. Recently a very large telegraph cable has been made to be sunk in the Mediterranean. It is 110 miles in length, and weighs somewhere about 800 tuns. It contains six copper wires, or conductors for the fluid to traverse, protected by a gutta percha covering secured in a hempen rope, and finally surrounded with twelve iron wires of No. 1 gauge. The projector and originator, Mr. John Watkins Bret, profiting by experience, has allowed 20 miles for what is technically termed 'slack' and 'way,' and for depths of the ocean. As now coiled in the yard, the cable occupies about 75 feet, taking its convex sides. The perpendicular hight of the coil is about five feet, and the width of one side of the coil from convex to concave reaches 24 feet. The moment it is laid London will bein immediate communication with Cagliari, in Corsica, through the cable and about 400 miles of subterranean wire.

Engineering Establishment.—The British Admiralty have undertaken to provide speedy means of effecting repairs of the machinery of any of the engines of the Baltic fleet, by equipping the "Volcano," steam-frigate, as a complete engineers' workshop, to attend to the fleet, and carry the workshop alongside of any ship requiring repairs of the machinery, and so effecting such repairs with all promptitude.—The deck of the Volcano has been lowered so as to yield a most spacious workshop, 10 feet high from floor to roof, 104 feet long by 30 feet wide, in which are placed, in most convenient arrangement, a 12 horse power independent steam engine, two boilers, to supply power and motion to the various machines, and tools, forming the equipment of this floating workshop; which tools and machinery consist of one powerful turning lathe, and three others of graduated capabilities, two planing machines, two boiler-plate punching and shearing machines, four drilling and boring machines, two bolt-screwing machines, one steam hammer, with four forges, one cupola, capable of executing any casting in brass or iron up to 30 cwt., with its appropriate foundry apparatus and material, a blowing fan to supply blast to the forges and foundry cupola; together with grindstones, anvils, vises, and all the minor implements of a very complete and efficient engineers' establishment, which there can be no doubt will prove of the utmost value and importance to the service. Mr. James Nasmith, of Patricroft, has been entrusted by the Admiralty with the equipment of the Volcano.

Organs.—The present organist at Breslau, Prussia, gives in a book just published, some curious facts respecting the external embellishment of the organs in the seventeenth and beginning of the eighteenth centuries. One had the whole case ornamented with statues, heads of angels, vases, foliage, and even figures of animals. Songs of nightingales, cries of the cuckoo, celebrated holy Christmas, and proclaimed to the Christian assembly the birth of the Redeemer, and eagles flapped their wings or flew towards an artificial sun. The crown, however, of all these absurdities was the fox's tail. It was intended to frighten away from the organ all those curious and inquisitive persons who, by thronging round it, often disturbed the organist. Thus, when they pulled out this stop, suddenly a large fox-tail flew into their faces. Another absurd contrivance is the *tremulande*, a register which on funeral services, fast days and on Good Friday was to indicate the sobbing, sighing, and trembling of men.

Arms for a Statue.—Every body has seen or heard of the Venus of Milo—that wonderful creation which of itself is worth a whole museum. It will be remembered the statue is destitute of arms, and academicians, antiquarians, and sculptors, have long been in dispute upon their true position and movement, while every artist has deplored their loss. It seems that these arms have been recently found—not the veritable originals belonging to this particular statue, but a copy with the arms in their right place, which has just been exhumed from the trenches of Rome. The Venus of the Louvre is nearly seven feet high. The copy just found is of reduced size, being from four and a half to five feet only. The Venus, it seems, has triumphed over her rivals, Minerva and Juno, with whom she has disputed for the prize. One of her arms, the left, is elevated in the air, where she holds the apple which Paris has just given her. The right is inclined downward, gathering and adjusting her raiment. Thus has the problem been solved; but where is the artist who dares chisel out the arms of the Venus of Milo?

Size and Proportion of Rooms.—Experience shows that where a room of moderate size has the breadth equal to two-thirds of the length, and the hight half of the length, every body will acknowledge it to be a well proportioned room. We do not know why, but if we take a foot away from any of these dimensions, the room will not obtain so ready a commendation, though in point of convenience nothing may be lost. The finer and more cultivated the taste the more sensible will a person be of a small aberration from these proportions. I say a small aberration, because with a greater difference a new style of beauty may be introduced, and two persons of equally refined taste may differ as to which is the better. A square room would have its advocates, though this form is not much in request at present, and in that case the hight should be at least equal to two-thirds of the width, or more, perhaps even to the whole width if with a coved ceiling. Generally speaking, the eye more readily forgives an excess of hight than the want of it. In small rooms a square form is preferable to an oblong, partly, I suppose, with reference to the human stature. A room 12 by 12 feet may do very well in a small house, one 14 feet 9 inches by 9 feet 10 inches occupying about the same area, and half as long again as abroad, would be inconveniently narrow. To a Liliputian, I apprehend a room 6 feet by 4 feet, and 3 feet high, would seem exceedingly well proportioned. A double cube is a beautiful form, and for a large hall, or in a public edifice, a length equal to three times the breadth, and a hight equal to half the length, would be almost universally approved; but in small rooms these proportions would not be pleasing. A room 36 feet by 12 feet would not be admired, and in such a room the hight of 18 feet would appear extravagant. In these feelings there is an evident reference to a being 5 or 6 feet high.—[The Builder.

The Atmospheric Telegraph.

The atmospheric telegraph of I. S. Richardson, of Boston, which was illustrated on page 265, vol. 8 Sci. Am., has been laid before Congress, and an appropriation asked for laying down a line between Washington and Baltimore, for carrying the mails. A committee, appointed by the Senate—of which Senator Mallory is chairman— to investigate the subject, has reported as follows:

"It is deemed expedient that the experiment should be made for a short distance, upon an established mail route, in order that, if successful, it might constitute a part of a more extended work; and your committee has been disposed to prescribe a direct line between Washington and Baltimore. Themail between Washington and New York is now carried upon railroads in twelve hours. If your committee do not greatly err, the same mails may be carried between these cities in two hours, by the proposed atmospheric telegraph, and the expenditure now necessary for the transmission of one set of mails, would enable the post office department to send six sets of mails every twelve hours. Many practical difficulties and objections will doubtless develope themselves whenever the atmospheric telegraph shall be established upon a large scale—such, for example, as wastage of power in the air pumps, the wear and tear in the mail bags, pistons, and interior surface of the tubes by high velocities, the admission of air in the tubes, the effects of climate upon them, the expense of establishing them, &c,, &c.; but your committee, after weighing these and other objections which have been suggested, do not hesitate to recommend an appropriation to test its utility and capacity."

We certainly would like to see this plan fairly and fully tested, to determine the practicability of the invention on a long line, for on a small line it operates well.

Cotton Manufacture in the Southwest.

The Louisville papers state that the success of the extensive cotton manufacturing establishment of H. D. Newcomb & Bro., of Louisville, at Cannelton, Ky., during the last year, has been unprecedented in the history of modern manufactures. Their mammoth mill now in operation at that place, turns off a daily production of goods, such as the very best domestic fabrics in market, equal to 15,252 yards. The value of one day's production, at the present market rates, 8 1-4 cents, is $1,258. The monthly productions of this mill, as compared with eastern water and steam mills, of like capacity, shows an excess over their monthly reports of from ten to twenty-five per cent., thus demonstrating the entire practicability of the establishment of cotton manufacturing in the valley of the Ohio with far superior advantages over that branch of business anywhere east of the mountains.

The reports from east, west, north, and south respecting the crops, are very favorable.—Flour is now falling in price.

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New Inventions.

Improved Stone Dressing.

Charles T. Porter, of this city, has applied for a patent for an improvement in machinery for dressing stone, whereby some advantages are promised to those engaged in this extensive and constantly increasing business. In a late invention the adjustment of the ways at the desired angles, and the maintenance of the proper relations between the rest, the hammer, and the toolstock, are provided for by the employment of a cylindrical rest, and further by giving a concavity to the toolstock whereby it is fitted to the cylinder and pivoting the ways to the rest. Mr. Porter professes to have rendered this cylindrical arrangement unnecessary, thereby simplifying the desired process and lessening the cost of machinery, and to have attained other desirable ends. Among these he specifies the accomplishment of a more rigid connection between the ways and the rest, whereby much racking and disarrangement is obviated. The rest and ways, which constitute a sort of frame, are furnished with journals fitting to suitable boxes in the main framing, and these journals serve as pivots upon which the rests and the ways swing together in such a manner as allows of their adjustment as the altered motion of the hammer requires, from time to time, in order to secure the desired angle of out or dressing. For his proposed improvement the more important features of which we have here described, Mr. Porter has secured a patent in Great Britain through the agency of the Scientific American establishment.

Improved Windmill.

Daniel Halladay, of Ellington, Ct., claims an improvement in windmills. This consists of the attachment of wings or sails to rotary movable spindles furnished with levers. These levers are also attached to a head which rotates with the sails upon the same shaft. Another lever is attached to the head. This is connected to a governor which slides the head upon the shaft, so as to cause the levers to turn the wings or sails. The necessary resisting surface being thus presented to the wind, a uniformity of velocity is attained. The proper regulation of the *obliquity* of the sails, so as to adapt them to the varying motive force of the atmosphere, is represented by the inventor to be thus secured, without difficulty, to a degree which renders his mill more constantly available than those hitherto employed.

New Centrifugal Pump.

In the centrifugal pumps, heretofore in use, there has been much friction and consequent loss of power, experienced from the change of the direction of the water at the customary angle. William D. Andrews, of this city, has applied for a patent for such an improvement as he thinks will obviate this difficulty. His plan is to tightly fit a hub in a case, and furnish it with spiral induction and eduction passages of gradually decreasing and increasing pitch, whereby the water's movements are duly regulated. In order to insure this result, the hub is made in the form of an inverted cone, deprived of its apex, to whose circumference are attached longitudinally radial arms, which decrease in width as they approach the base of the cone.

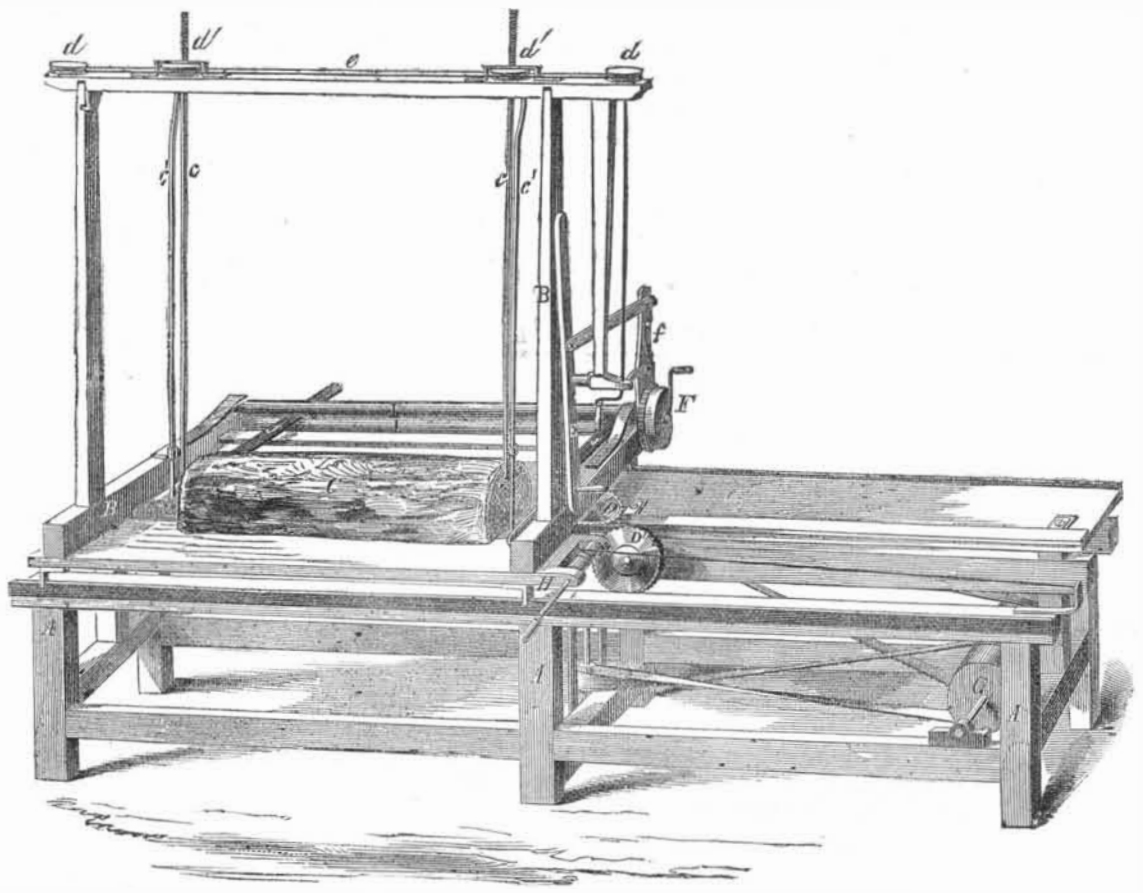
Improvement in Steam Valves.

An improvement in steam valves has been suggested by Caspar Devilbis, of Cadiz, Ohio, the nature of which partakes of the slide valve principle, but is of circular form, and receives a reciprocating motion about its axis. To the valve, so constructed, there is to be attached a cylindrical head of about the same area as the valve. This head is concentric with the valve, and works in a stuffing box back of it. The inner end of the cylinder is exposed to the pressure of the steam, while the outer end is exposed to the pressure of the atmosphere, and thus the desired balance is secured without any precaution beyond the packing of the cylinder to prevent the escape of steam.

IMPROVED SAWING MACHINE.

On page 228, vol. 8 Scientific American, we noticed the application for a patent on an improved sawing machine, by Thomas J. Alexander, of Westerville, Franklin Co., Ohio, and for which a patent was issued on the 20th of last September. The accompanying figure is a perspective view of the machine, the object of which is to saw sticks for fence-rounds, fork, hoe, and broom handles, paling, lath, &c., direct from the log, thereby saving the expense of having the timber first sawed into plank—as is usually done. A log is shown in the frame, and one horizontal and two vertical slitting rotary saws in the machine.

A A is a rectangular frame, and B B represents a peculiar carriage placed on ways on the upper part of A. This carriage has a forward and backward motion given to it for feeding the log to and back from the saws in any of the known ways for so doing. The top cross piece, *e*, of this carriage, swings in the uprights by metal guides working in curved groove near the top; *c c*, are two rods with screws on their upper ends, these work through grooved pulleys, *d d*, which have threads cut in their eyes; therefore, by these pulleys being moved in one direction, the rods, *c c*, rise upwards, and elevate the log, C, or being turned in the contrary direction, the log is lowered. These same rods have spurs on their lower extremities which catch the log, and they have clasps which surround the rods, *c′ c′*, which thus act as



guides. By raising and lowering the log, it is brought down to be acted upon by the horizontal saw, D, which is secured on a vertical shaft. To the lower ends of the rods, *c′ c′*, are secured ways, J J, which have a half twist and pass between two rollers, I I, on the back part of the carriage, the upper one is pressed down by springs, and on its end is a ratchet wheel, F, which is operated by a lever handle. It has a ratchet which takes into its teeth. By turning this lever in one direction, the rollers, I I, feed the thin ways, J J, between them, and draw them out, thus making the frame, *e*, with the log swing to the one side, and by turning the said lever in the contrary direction, the ways are drawn inwards and the frame and log swung in the contrary direction. D′ are two vertical saws, secured on a horizontal spindle; four or more are used when sawing lath. It will be observed, that the saw, D, cuts a horizontal *deal*, while the saws D′, cross-cut the same. A cord passes around the pulleys, *d d*, at the ends of the swing frame, *e*, and around the nut pulleys, *d′ d′*, for raising the log rods, *c c*. The motion of these pulleys is directed by a vertical rod, with a crank lever at its lower end, near E, which is a small lever for working the ratchet, *f*, which is secured on a rocker arm. This ratchet, by pushing the lever, E, backwards and forwards across the frame, is made to take into and pass over any number of teeth on the ratchet wheel, F, so as to work the top roller, I, to feed the ways, J J, to the proper position, and thus set the log as may be desired, for proper sawing. The log, C, being secured between the screw rods, *c c*, the rod of pulley, *d*, is turned and the log raised from the table; it is moved laterally by the gauge lever, E, operating the ways, and then run through, and a stick cut from the log, which drops into the box below through the open space, running on a line with the saws, D′. When the carriage is run through in one direction, the log is again brought to the proper gauge by the lever, E, operating the feeding roller, I, and the carriage is run back, and a stick cut out like the first, and thus the saws cut both ways, until the whole width of the log is cut out in strips, when the log is lowered for another series of cuts, and thus cutting cross ways, and vertically, backwards and forwards; the operations are continued as described, until the log is all cut into the proper stuff desired. The size of the stick to be cut, and the number of lath, is determined laterally by the gauge lever, E, and vertically by the hight of the log in the frame, which is regulated by turning the crank handle of pulley *d*, at J.

The duty of the machine represented is to saw for two gauge laths. Four saws like D′, will cut out 20 lath per minute—and ten thousand can be cut out in a day.

More information may be obtained by letter addressed to the patentee at Westerville, Ohio.

Improved Hay Knife.

This is a perspective view of a new Hay Knife, for which a patent was obtained on the 2nd of May last, by Seth Whalen, of West Milton, Saratoga Co., N. Y.

A is the knife, with a cross-head handle, B B. The blade is formed with a bend near the handle, so that it stands out from it at a suitable distance without a shank, the blade being simply screwed to the center of the handle. This method of constructing hay knives, so as to divide the applied power between the two handles, B B, with the knife in the center, economises labor, and enables the operator to cut with greater ease and more facility than with the old-fashioned hay knife, which has not a cross-head handle. Thus by power being exerted upon the knife, as represented, it will cut vertically and horizontally, as indicated by the lines, *a b*, and it will have a pressure always in that direction, owing to the position of the operator and the action of his arms, and thus the cutting power will be more equally distributed between the lines, *a b*, as shown by the arrow, *c*.

The claim of this patent sets forth the nature of the invention clearly; it is as follows: "I claim attaching a blade made of sheet steel and bent at its upper extremity so as to stand out from the handle, and between the arms, whereby a great saving in time, labor, and expense in making hay knives can be effected, and an equal distribution of the power of the operator exerted in a perfect manner upon the edge of the knife, causing it to act more effectually upon the hay than the ordinary knife."

More information respecting rights, &c., may be obtained by letter addressed to J. Livesey, Saratoga, N. Y.

The National Armories.

The superintendence of the National Armories for the manufacture of fire arms, which have hitherto been under military officers, are to be placed under civilians—according to an amended bill which has just passed the House of Representatives. This is just bringing back measures to their former position.—Great complaints against the tyranny of military officers, have been made by the mechanics since the former became their superintendents.

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Scientific American.

NEW YORK, JULY 29, 1854.

Improvements in the Use of Steam.

Our constant readers will remember that we published on page 24, Volume 5, "Scientific American," the Report of the Rumford Committee of the American Academy of Arts and Sciences, at Cambridge, Mass., of which Prof. Hosford was Chairman, on the alleged discovery of new properties in steam, by the late James Frost, of Brooklyn.

Count Rumford left a sum of money to Harvard University, directing the interest thereof to be distributed to any discoverer of new and useful properties of heat, and Mr. Frost submitted his invention to the faculty of the University claiming the honorary reward. The discovery claimed was new properties asserted to be acquired by steam when heated apart from water. The University turned the subject over to the Rumford Committee named, which ignored the claims of the discoverer in a curt manner. On pages 179 and 195, same Volume "Sci. Am." we illustrated Mr. Frost's experiments, and brought the subject prominently before the public. A patent had been denied in Washington, but one was obtained in England, and E. K. Collins, Esq., after some experiments made for his own satisfaction, paid the discoverer some consideration for its use. On the 25th of May, 1853, C. E. and S. Wethered, of the city of Baltimore, obtained a patent for the use of common steam and superheated steam (Frost's "*Stame*,") in combination, for actuating engines, thus showing that the Patent Office had become more liberal in its management, it being for some years before notoriously tyranical and despotic. With Mr. Frost's discovery and the invention of the Messrs. Wethered, a new impulse, it is stated, is about to be given to steam navigation, whereby an entire revolution in the saving of fuel is to be effected.

Important operations have been going on for some time in the Collins' steamer "Arctic," for the purpose, we understand, of using *stame* and steam combined, instead of simple steam, as heretofore. A portion of steam, after being generated in the boiler, is carried by pipes through the furnaces, when it becomes *stame*, and from thence passes to the steam chest, to be mixed with an equal portion of simple steam, before it enters the cylinders and actuates the pistons. It is asserted that by this means a saving of at least forty per cent. of fuel will be effected, amounting to no less than $62,000 per annum to the Company. These changes in the principle of operating the engines of the "Arctic," have not been hastily undertaken. Through the spirit and liberality of Mr. Collins, a series of experiments were made to test the merits of this invention in this city, in the months of November and January last, upon a scale, reasonable in itself, to settle the question in all its bearings. The first experiments were made with a stationary high pressure engine, kept by Mr. Collins for such purposes, and were perfectly satisfactory; but it was resolved to test the invention on a larger and more practical scale, and for this purpose the tug steamboat "Joseph Johnson" was procured and fitted up on the North River, with the tubes running from the boiler through the furnaces, to convey and super-heat a portion of steam and conduct it to the cylinder, where it was mixed with an equal portion of simple steam. By this arrangement the simple and super-heated steam (*stame*) could be used singly, or combined, and they were thus tried. From tables kept by D. B. Martin, Engineer-in-Chief U. S. N., and furnished to B. F. Isherwood, Chief Engineer, who communicated a paper on the subject to our respected cotemporary, the "Journal of the Franklin Institute," it appears that the economy of using the simple and super-heated steam combined, was 53½ per cent. over the use of simple steam. This was less than by the stationary engine, in which the gain was 72 per cent. in saving fuel.

No information has been furnished respecting the economy of using super-heated steam (*stame*) alone, although we have been informed that it is intended to use it in this state in the "Arctic." It appears to us that a portion of moisture in the steam (*stame* and steam mixed) must be more profitable than the *stame* alone. Steam in its nature is a partial lubricator, and must make a piston play more sweetly in a cylinder than dry super-heated steam. The high heat and dryness of *stame*, in licking up oil and injuring the packing, are also objections to its use, (these are also insuperable obstacles to the use of hot air as a motive agent),—and on a long voyage, we think, it would be objectionable, but the "Arctic" will determine this question fully. And here let us say, that although a sound judgment and scientific knowledge may reasonably lead men to form a very correct opinion of what may be the results; still, it is experiment, fairly and fully tried, not for a day nor an hour, but for weeks and months, that can alone settle the whole of the economical questions involved—fuel being but one of them. We hope and trust, however, that the invention will prove to be perfectly successful, and if so, we anticipate an increased speed in our Atlantic steamers. Thus if the saving of fuel amount to fifty per cent.—as the consumption of coal is now about eighty tuns per day, and a voyage ten days—no less than four hundred tuns of freight—dead weight—will be saved, which ought to shorten the voyage one day at least. Viewing this question in all its bearings, and looking with hope to new and important achievements in ocean navigation, we cannot but lament that so little credit has been given to the man who brought the subject before the public, and whose mind first conceived the project of heating steam apart from water for motive purposes:—we allude to the late Mr. Frost. We have looked in vain for the record of any other person so treating steam, and as "Honor to whom honor is due," is our motto, we allude thus feelingly, while presenting this information to our readers, because a number of paragraphs and articles on the subject have appeared in other periodicals, (some anything but correct), and in which much credit has been given to various parties, while the name of the *real genius* was never introduced. Yea, more than this, Capt. Ericsson, in one of the most brazen-faced letters we ever read, which was published in the N. Y. "Herald" of the 20th inst., claims to be the first who employed super-heated steam as a motive power, but he does so in such a clumsy manner, that the absurdity of the claim is as transparent as his heated air.

The Asteroids.

The Nebular hypothesists, in their efforts at uniformity in the Solar System, have never for a moment hesitated to propound the most absurd views in support of their notions. They set out with assuming that all the matter of our solar system was once in a state of gas, and that by cooling (where did the heat go?) and gravity it began to whirl round faster and faster, throwing off ring after ring, forming Neptune, Uranus, Saturn, Jupiter, &c.,—all of them, by some method not explained, becoming for a while globes of fire—the larger one on the outside, and the others growing smaller and smaller, until we arrive at Mercury. The relationship of these rings they calculated with assumed gravity, and held up their theory as the most beautiful and harmonious ever conceived. There was always one flaw in it, however,—that was the space between Mars and Jupiter, which, according to their views, should have contained a large planet, but instead thereof, it was found to contain a great number of exceedingly small ones. But never at a loss for some covert to hide their absurdities, they assumed that these small planets were the remains of the large one which should be there, and which, by some unexplained cause, had become a mass of ruins. D. Vaughan, who seems to delight in marshalling the starry hosts, and bringing them full tilt against one another, like knights upon the tented field, settled the matter of the Asteroids to his own satisfaction, by assuming them to be formed from the collision of two planets (a light and a heavy one). But the great astronomer, Le Verrier, in an article in a late number of the "Comptes Rendus," entirely demolishes all such nonsense. He says, "instead of explaining the existence of these bodies, by supposing an alteration in the primitive system of the universe, we are now led to believe, rather, that they have been formed regularly, like the others, and according to the same laws."

Instead of the matter of which the Asteroids are composed—according to the nebular hypothesis—being greater than the earth, he also says, "it cannot exceed *one-fourth* its mass."

That the matter in our solar system may, at one time, have been in a state of gas, we do not deny nor affirm, for no one can tell what was its primitive condition; and that the planets, large and small, were formed by certain laws, no sane man will doubt for a moment, for the great Creator works by means. But what is a law but the fiat of an intelligent being, consequently the laws which reign in the universe, which formed the stars and which guide them in their courses, as they did not create themselves, are simply the expression of the Divine Creator and Governor's will.

The discovery of the Asteroids belongs to the present century, the first having been seen on the night of January 1, 1801. Other planets have been known from the earliest times. New Asteroids have been discovered from time to time, especially of late years, and there are now known to be no less than *twenty-nine* of them, and perhaps as many more may yet be discovered. Those men who overlook common sense, in their zeal for such speculations—as the conflict of planets—are sure sooner or later to meet with discomfiture.

Royal and Republican Perfumes.

The London "Court Journal" announces the very important information "that it was Mr. Higgins who had the honor of supplying the toilet table of the Queen at the opening of the Crystal Palace, with the Kensington perfume, Lavender, Rose Water, and Eau de Cologne."

At the opening of the American Crystal Palace, President Pierce was supplied with a generous shower of rain which compelled him to seek a change of his wardrobe; this momentous fact may not be familiar to our brethren across the water, and it is perhaps equally important to know that M. Mass, a very polite Frenchman, had the honor also of supplying the President with a glass of brandy on the same occasion, it being feared that his Excellency would take cold without something to produce the re-action occasioned by the chill. Whether Mr. Barnum received any of those polite attentions or not at the re-inauguration, has not yet publicly transpired. It would seem prudent to suppose, however, that he did not, or else some public announcement would have been made of the fact.

The "Ericsson" turned into a Steamer.

It is creditably reported in our city, that the repairs which have been quietly making in this vessel for some time, have for their object the employment of steam as the motive agent; the *hot-air* project having been returned, *non est inventus.* Thus it is, "wonders will never cease," for this agent, after having extinguished Watt and Fulton through the medium of some of our very scientific cotemporaries, for a brief and intoxicating period, last year, has at last "fallen, fallen, fallen from its high estate," and bowed the knee to the gray-haired veteran in mechanism—steam.

This information we have received from more than one source, and as we have been unjustly the subject of much vituperation, for the candid views we expressed in reference to the affair, we will take occasion, at an early opportunity, of alluding to the subject at greater length.

Pateut Laws.

If any of the grave Senators could occupy a desk in our office for about a week, we are satisfied that they would not hastily pass a patent bill containing so many absurd and really ridiculous provisions as are embraced in the one just reported by Senator James.

Objections to it are coming to us from all quarters, and it gratifies our pride not a little to find them sustaining such views as we have already presented. Let inventors be active in remonstrating against its passage, and if they do not succeed in defeating it, there will be some satisfaction in the consideration of having performed their duty.

A Sewing Machine in a Palace.

We have received information from our foreign correspondent, that the Emperor of France, has purchased the French Patent of Avery's American Sewing Machine, for 95,000 francs. The inventor, Dr. Avery, had an interview recently with the Emperor surrounded by his ministers, at the Palace of St. Cloud, and he exhibited his machine amidst the plaudits of the Court. Louis Napoleon is a man of profound penetration, he can see into the merits and demerits of men and things with great rapidity, and he has displayed no small amount of sagacity in cultivating the good will of America by in the purchase of the above named patent, which was obtained through and arranged by our agents in Europe.

Steam Fire Engine.

A committee appointed by the Common Council of this city, has visited Cincinnati, at their own expense, for the purpose of seeing the efficiency of the Fire Department of that city. In order to show the New Yorkers what that city firemen could do, an alarm of fire was given, and in seven minutes thereafter every engine in the city was on the ground ready for work. Among these were the two steam fire engines, which were throwing streams of water in nine minutes after the torch was applied to kindle the fires under their boilers. Both engines threw eight streams through three-quarter inch nozzles a distance of one hundred and twenty feet. They were tested in every possible way, and the Committee, we understand, are well pleased with what they witnessed.

Ohio State Fair.

We understand that Joseph E. Holmes, late Superintendent of the Machinery Department of the Crystal Palace, has been appointed to superintend the Machinery Department of the next Ohio State Agricultural Fair, to be held at Newark, O., in the month of September next. The Ohio State Agricultural Society has always been distinguished for patronizing mechanical improvements; in this respect we think it has rather surpassed the one belonging to New York, which in other respects has no superior. The late Mr. Delafield, its President, however, was a warm patron of improvements in Mechanical Agriculture, as many of his communications to us can testify.

Nova Scotia Industrial Exhibition.

An exhibition of industry is to be held in Halifax this fall, and it is expected that the adjacent Provinces will be ably represented there. We hope the mechanics and farmers of New Brunswick, Prince Edward's Island, &c., will be largely represented on the occasion. These Provinces are rich in natural resources, and we know they contain a great number of enterprising and intelligent mechanicians.

Kentucky Mechanics' Fair.

It affords us pleasure to direct the attention of our inventors, mechanics, and manufacturers to the advertisement an another page, of the Kentucky Mechanics' Institute, Louisville, in relation to its next Annual Exhibition, to be held in that city on the 26th of next September. We have no doubt but the Fair will be conducted ably and to the satisfaction of exhibitors. The mechanics of Louisville have a high character for skill and intelligence, and whatever they undertake to do, they perform with credit to themselves, their city, and State.

New Pavement.

Nassau street opposite the Custom House is in a state of civil blockade in consequence of the laying down of a new cast-iron pavement for the purpose of testing its qualities. It appears to be an excellent invention for the purpose, and we hope it may prove itself to be so. Those who have any desire to learn its character can do so by referring to page 244, Vol. 8, "Scientific American," where it is illustrated and fully described.

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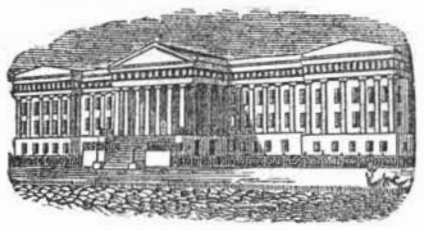

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING JULY 18, 1854.

STEAM BOILER—W. E. Bird, of Cahawba, Ala.: I claim the combination of the lower boilers or boiler, and the upper boilers or boiler with each other and with the furnace, in such a manner that the top of the furnace will be formed by the upper boilers or boiler, and the rear of the furnace be principally formed of the lower boilers or boiler, while the flue space from the said furnace passes between the said upper and lower boilers, and communicates with the flues returning through the lower boiler or boilers, as set forth.

COTTON GIN RIBS—I. F. Brown, of Columbus, Ga.: I claim the employment of a series of cast-iron hubs, each having two or more arms cast with them, each of which arms is of proper form to combine with a short rib, and with it form a complete rib, whereby when the said hubs are secured upon a shaft arranged in a proper position, their arms may be successively brought into combination with the short ribs, for the purpose of renewing the wearing parts, as described.

PREPARING FLOCKS FOR FELTING—L. W. Boynton, of South Ooventry, Conn.: I am aware that brushes have been used for preparing flock, and analogous substances, and that the use of a wire screen is not new, I therefore do not claim either of them as such.

But I claim the combination of a wire screen, with a revolving cylindrical brush and one or more stationary brushes, when the screen is placed below the revolving brush to prevent any of the flock from falling on to the web of wool, before it is fully prepared, and also to assist in preparing the flock when the whole is constructed and combined as described.

COATING IRON WITH BRASS OR COPPER—Hugh Burgess, of Kentish Town, Eng. Patented in England Feb. 17, 1853: I desire to state that I do not claim any of the apparatus or the process to which they refer.

I claim the coating of iron sheets, bars, bolts, and other forms of iron with copper or brass. by a combination of processes as follows: by first cleaning, then coating them over with a solution of cadmium or zinc, drying and dipping them into a bath of melted copper or brass, and raising them out of the bath into an atmosphere of steam and carbonic acid flowing in streams or in jets, as described.

BLOCK SLIDE VALVES FOR STEAM ENGINES—L. R. Conard, of Philadelphia, Pa: I claim forming the passages through said valve, so that the oblong steam and exhaust openings shall enter from the upper and lower surfaces, longitudinally to its motion, and leave the opposite surfaces transversely thereto, as described.

MAKING PRINTING BLOCKS.—Thos. Crossley, of Boston, Mass.: I do not claim the use of gutta percha as a material for making printing blocks; neither do I claim sawing blocks into prisms, for the purpose of more easily removing those portions of the block not required for the figure.

But I claim the described method of making printing blocks, the surface of gutta percha being applied to the surface of the wood, as set forth.

BRIDGES—Samuel and Thomas Champion, of Washington, D. C.: We claim, first, the combination of the tubular braces or struts made smaller by gradation, or tapering as they extend from the pier or support, with suspension rods, also made smaller by gradations, or tapering, as they extend from their pier or support, as specified.

We also claim the arrangement, as described, of the struts, suspension rods, and clamp posts, viz., the oblique struts between the center posts, and horizontal strut, being placed in lines radiating from a common center, and the suspension rods being also placed in lines radiating from a common center, above that from which the struts radiate in such manner that each suspension rod shall extend from the top of the column or post over the pier or support, to the foot of one of the clamp posts, while each oblique strut shall extend from the foot of the post, over the pier to the head of each clamp post, as described.

We also claim the construction of tapering tubular struts of bridges of not less than two concentric sheets, layers, or thicknesses of metal, the sheets of each layer abutting, and those of one layer breaking joints with the next, as specified.

OPERATING EXCAVATING MACHINES—J. A. H. Ellis, and Alexander Gordon, of Rochester, N. Y.: We claim, first, placing the operating machine within the circuit of an endless chain, which passes over a pulley anchored at one point, and over or around a capstan at another point, so that the excavator shall form a part of the endless chain, and be drawn forward or backward and operated by it, as described.

We also claim attaching one or both ends of the chain to a drum or shaft connected with the machine, so that the slack of the chain may be taken up on said drum or pulley shaft, to cause the machine to move steadily without sudden strain; or to let out the chain when it becomes necessary to draw it out of its direct line for guiding the machine in any desired direction, as described.

WINDMILL—Jacob Erdle, of West Bloomfield, N. Y.: I claim the manner or mode of filling the whole wheel with fans or wings, which causes the wheel to be more powerful than it otherwise could be, as it receives the power from the whole current of air that strikes within its circle, and the mode or form of regulating, stopping, and starting the wheel through the center of the main shaft.

TANNING—Roswell Enos, of Woodstock, Ill.: I claim commencing the tanning operation upon the sides, by the use of a salted infusion of sumac, and then completing said tanning operation by the repeated use of the strong oak or hemlock bark liquors, as set forth.

SEPARATING IMPALPABLE POWDER FOR PAINTS—Geo. W. Griswold, of Oarbondale, Pa.: I claim the process of separating and collecting impalpable from coarser substances, such as ground coal, &c., for the purpose of paint, by the means described.

RAISING VESSELS—Felix Huston, of New Orleans, La.: I am fully aware that auxiliary floats to raise vessels have been used, some of which have been so geared as to be rotated for winding up the raising lines or chains, and that levers and weights have been used in connection with dry docks for raising vessels in said docks. These I do not claim.

But I claim the raising of sunken vessels by means of the careening motion of the slide or auxiliary vessels, whether such careening motion is procured by weights run across the decks from side to side of said vessels, or aided by arms projecting beyond said slides, as described.

HORSE POWERS—Wm. R. Palmer, of Elizabeth City, N. C.: I claim the combination of the rib or projection upon the arms, with the bent pin or iron, or their equivalents, constructed and arrangrd, as described, for the purpose of giving a short bend to the rope or band, and thereby prevent its slipping, as set forth.

SCOURING PIECE GOODS—J. A. Roth and Joseph Lea, of Philadelphia, Pa. Patented in England Feb. 7, 1854: We claim the combination of the series of distributing rollers, &c., and the dasher wheels with the vat, as described.

CUTTING TOBACCO—Ebenezer Murdock, of Albany, N. Y.: I claim the process of manufacturing cut tobacco, by mixing with the leaves, as stripped of the stems for cutting the stems previously cut up to a certain degree of fineness (the object being to facilitate by the use of said stems, the advantageous cutting of the leaf itself,) the mixed mass then to be cut up together to the requisite fineness, and then the stems to be separated from the cut leaf, which is then ready for use.

LAMPBLACK HOUSE—Wm. G. W. Jaeger, of Baltimore, Md.: I claim the division of the house lengthwise with the aperture, and the connection of the two houses by chambers, by which I am enabled to carry the smoke around the whole length of the house, and return it by means whereof a superior quality and a greater quantity of lamp black is condensed,

I also claim the use of the two furnaces, as described, by which the manufacture can be carried on uninterruptedly.

I also claim the waste chimneys, that open some distance below the roof, constructed and arranged as set forth.

HERMETICAL SEALING—Jas. Spratt, of Cincinnati, O.: I do not claim the gasket and screw, nor the wax trough, separately considered; but I claim the screw cap or cover and neck, as described, provided with a gasket of gum elastic, or like substance, at their inner junction, when this is combined with a trough for containing cement around their outer junction, for the hermetical sealing or closing of preserve canisters.

STEAM GAUGES—Thos. Stubblefield, of Columbus, Ga.: I claim the combination of the hollow cylindrical box, perforated at both ends, with a hollow cylinder of india rubber open at one end, and performing the duty of a manometer spring, as described, and also separating the perforations in the opposite ends of the box, the several parts being constructed and arranged, and the case connected with the boiler, and the india rubber with the index, as set forth.

WASHING MACHINES—H. C. Stevenson, of Georgetown, Ky.: I claim the arms and the springs, in combination with the rubber and plate, constructed and arranged as described.

WEAVERS' HEDDLES—Jacob Senneff, of Philadelphia, Pa.: I claim forming the eye of the heddle, by casting or otherwise securing around and between the strands or threads composing the same, metallic clasps in lieu of the cumbersome knots heretofore employed, curved on their sides and made concave and smooth on their ends between the strands or threads, where they form the ends of the eyes, as set forth.

BUCKLES—Wm. W. Smith, of Marshall, Mich.: I claim the stationary hook or tongue attached to the body of the buckle as described, as an improvement on the old or loose tongue and buckle, not only in the cheapness of manufacturing them, but in their strength and durability and the ease with which they are or can be buckled and unbuckled.

RAILROAD CAR TRUCKS—Abram Snyder, of Hawley, Pa.; I claim making the bearing surfaces of the disks on which the load swivels, and is supported of an undulating form, as described.

MAKING STEEL DIRECT FROM THE ORE—G. H. Smith, of Rochester, N. Y.: I claim the process of converting the iron ores, known as the oxyds and carbonates, directly into steel, by subjecting the ore in the comminuted state with carbon, and with or without other flux, in a close oven, retort, or other vessel, to a high degree of heat, say about the temperature of what is known as white heat, and then separating the metallic particles from the impurities, and either melting them in crucibles to produce cast steel, or welding and balling them in a re-heating furnace, and subjecting the mass to pressure by rolling or hammering to produce spring steel, as specified.

APPARATUS FOR LAYING OFF THE SCYE, IN CUTTING GARMENTS—Peter Spilman, of Richmond, Va.: I do not claim the laying down of lines on a diagram for determining points of the arm holes of coats, considered irrespective of the precise manner in which these lines are placed relatively: for I know that diagrams with lines on them, but differing entirely from those which I have invented, have heretofore been made.

But I claim the apparatus, consisting of the diagram constructed and operating as described.

METALLIC FIRE PLACES—J. F. Snyder, of Culpepper, Va.: I do not claim suspending a screen in front of a fire place, which may be operated by means of weights and pulleys, as that is an old device.

But I claim forming the screen with narrow metallic strips having a concave surface connected by links, making them flexible and easily coiled into a small space on a cylinder, the whole being arranged and constructed in the manner and for the purpose set forth.

HOLDING DOCKS OF HORSES—Seymour Tomlinson, of Pleasant Valley, N. Y.: I claim the stuffed section or pads, or their equivalents, so constructed as to support the tail of the animal in the required position by its sides, and the hair upon the sides, so as to leave the cut, pricked, or scarified portions untouched, thereby permitting them to heal much sooner than if the fixtures which support the tail come in contact with them. Not intending to claim any of the other parts described.

WINDING ROPE, CORD, OR YARN—P. B. Tyler, of Springfield, Mass.: I claim, first, the combination of the friction brake, operated as described, and the sliding belt or its equivalent, as specified.

Second, I also claim driving the reel by its outer periphery by the employment of the finger or dog, as described, in combination with the guide, for causing the reel to traverse, the reduction of friction caused by the mode of driving enabling the guide to cause the reel to traverse without too much resistance.

PAPER FROM WOOD—Chas. Watt, of London, and Hugh Burgess, of London, Eng. Patented in England August 19, 1853: We do not confine our claim to the apparatus or utensils, or the manipulations named, as they may be varied to suit the circumstances of the case.

But we claim the pulping and disintegrating of shavings of wood and other similar vegetable matter for making paper, by treating them with caustic alkali, chlorine, simple or compound, with oxygen and alkali, in the order described.

THREADING SCREWS—G. F. Wilson, of Providence, R. I., and J. M. Whitney, of North Providence, R. I. Patented in England April 4, 1854: We do not claim the use of a gang or series of cutters, which are allowed to return after each operation and previous to making a new cut, as this has been done before.

But we claim arranging the cutters upon the periphery of a disk, or its equivalent, and bringing them up to the blanks by a continuous motion, as described.

Second, we claim the peculiar manner in which the chasers are made and secured to the cutter head, they being let into grooves or recesses in the head, and having their upper portions hinged to their lower portions, which latter are secured to the head by screws or otherwise, by which arrangement, while the chasers are held secure from all possibility of displacement they may be easily and expeditiously brought up to their work, as required.

CARRIAGE SPRINGS FOR LIGHT VEHICLES—Mary Burns (admtirx. of Robt. Burns, Jr., dec.), New York City. Patented in England June 7, 1853: I do not claim the helical metallic spring inside of the india rubber spring, as set forth.

I claim the combination of india rubber or other compressible material with a bar spring having a toggle-joint in its center.

Second, I also claim the lengthening and shortening of the toggle joint bar bstween the compressible spring, by means of the screw or nut, by which they are made to sustain their required weight with a proper degree of elasticicity having greater or less stiffness in the spring bracing of the carriage.

PEGGING BOOTS AND SHOES—G. J. Wardwell, of Andover, Me. (assignor to himself and Elmer Townsend, of Boston, Mass.): I do not claim the combination of a guide point with a set screw to regulate the distance of the pegs from each other.

But I claim the combination and arrangement of the guide or setting point with the handle, the awl or hole punch, the peg driving orifice and mechanism, as specified.

I also claim the combination and arrangement of the spring gauge lever or depresser and the screw with the handle and pegwood carrier, the object of the same being not only to gauge the space in the pegwood carrier so as to adapt it to pegwood of any desirable width below the maximum that can be used therein, but also to enable a person to move the pegwood downwards and back of and below the edge of the knife when necessary so that it may not be moved forwards under circumstances as stated.

I also claim the so combining the spring with the pegwood carrier, peg driver, and gauge lever that it shall not only serve to support the pegwood or constitute a bottom to the carrier, but also to force up the pegwood after it has been depressed either by the peg driver, or the gauge lever as specified.

MACHINES FOR SAWING STONE AND MARBLE—Albert H. Tingley, (assignor to himself, Edmund W. & Hervey F. Tingley) of Providence, R. I.: I claim the combination of the two spring pawls, their slotted connecting rod, the movable ratchet, and its tripping pin, with the fixed ratchet of the shaft of the sprocket wheel, the whole being operated as specified.

And I claim the series of hooked pins on the water distributor, in combination with the series of notches applied to the connecting rod for operating the water distributor, the whole being for the purpose of regulating the motion of the water distributor and of causing that motion to take place over either a portion or the whole entire surface of the stone as occasion may require.

RE-ISSUE.

SAWING MACHINE—Chas. R. Fox, of Chicago, Ill. Patent originally dated May 9, 1854: I claim the combination of the notched plate, pawl, rack, pinion, lever, and sectional pawl, arranged and operating as set forth.

Also the construction of the boxes with the opposite inclined inner faces for giving the requisite set-off to the carriage when gigging back and again setting up, when moving forward for the cut as set forth.

ADDITIONAL IMPROVEMENT.

LOOMS FOR WEAVING FIGURED FABRICS—Saml. Eccles and James Eccles, of Philadelphia, Pa. Patent originally dated Aug. 3, 1852: We intend to apply the stop motion described to looms having other kinds of shuttle box motions attached, and shall vary the form of the parts, to suit the necessities of the various cases.

We claim the mechanism described which connects and disconnects the shuttle box motions to and from the cam shaft, that is to say, we claim the bell crank lever when kept in connection with the grooved hoop or collar by a spring or its equivalent in combination with the lever and its connecting rod or any mechanical equivalent therefor, when the said lever is operated upon by a filling thread stop motion, when the filling thread breaks or becomes expended, for the purposes described.

We further claim the pattern chain composed of lags, having projections or segments of flanges on the top and blank lags, having no projections on the top, as herein described, for the purpose of operating rise and fall shuttle boxes therewith in power looms for weaving figured fabrics.

NOTE.—Several patents in the above list were secured through the Scientific American Patent Agency.

(For the Scientific American.)

Lightning Conductors for Ships.

I have long considered a good lightning conductor for ships a great desideratum, and have employed a good deal of my spare time and money in endeavoring to introduce into our Navy, and into our mercantile marine, the conductor of Sir William Snow Harris, which, in the British Navy, in the Hon. East India Company's service, and in some of the other navies of Europe, has been adopted; every ship in the British navy has Harris' conductor, and not a pound sterling nor a single life has been lost by lightning since it has been fully adopted. This is a fact which speaks to the humane, as well as to that no smaller class who look solely to their own interest.

The Harris Conductor has not been used in our navy principally because "there is no appreciation in the Navy Department for the purchase of a patent right," and it has not been introduced into our mercantile marine because it is too costly.

With a view of bringing into use the same principles at a smaller cost, I turned my attention to a modification of Harris' Conductor, and have obtained a patent for it, as you know—my improvement or modification is approved by Sir William S. Harris.

It consists simply in leaving the masts at or near to the eyes of the lower rigging, and coming down by one of the shrouds on each side, by a system of tubes and sockets in connection with a a conductor fixed to the side of the ship. By this process the interior of the ship is avoided, and a simple yet fixed conductor is applied, by which the electric fluid is carried off; a ship can be fitted as well afloat as on the stocks, and as well loaded as when empty, and the moderate cost brings it within the range of the *general ideas* of ship owners.

The usual chain or link conductor used in the navy, and in some merchant ships, is good *as far as it goes*, but being very liable to derangement, by reason of the strains and jerks to which it is subject, it is not generally adopted, and does not meet the requirements of a permanent conductor. A copper wire of 1 1-6 of an inch in diameter, is good as far as it goes too, and the same may be said of a wire no larger than a piece of twine, or not larger than sewing silk. A small wire will carry off a small discharge of electricity harmlessly to the mast and ship, but it will fuse in the operation, leaving the mast unprotected. Now, it is desirable to have a conductor permanently fixed to, and incorporated with the masts and hull of a ship, so that a heavy discharge will be as easily carried off as a small one by a small wire.—The conductor which I have patented will do this if it has sufficient surface, and is thoroughly fitted.

I am now only waiting until I can make suitable arrangements with some well known concern engaged in the manufacture of copper, for the purpose of supplying ships with fixed and reliable conductors, which, if generally adopted, will save many lives and much property.

The underwriters of New York have agreed to make a return of two per cent of the premium on all ships furnished with suitable lightning conductors, they show a regard for the cause of humanity and for their own interests by making this return; and it is to be hoped that all underwriters will follow this good example, not that it is the duty of underwriters to encourage these means more than ship owners, but the concession will have the effect to wake up the owners of ships to a sense of their duty in this respect. R. B. FORBES.

Boston, Mass.

The Great Republic.

The mammoth clipper "Great Repubulic," the hull of which was lately purchased by N. B. Palmer, of this city, is to be rebuilt. She will have but three decks and three masts, instead of four as first built, and will be capable of carrying from 3,000 to 3,500 tuns. The cost of re-building her will be somewhere between $100,000 and $125,000. She will be employed in the China trade, under her original name. The length and model will remain unchanged. In sixty or seventy days, it is stated, she will be ready for sea.

Manufacture of Caviare.

The sturgeon fishery is very extensive in the rivers in New England. A part of the fish is valuable for the manufacture of isinglass.—The spawn is largely bought up by a German, who, for several years, has manufactured therefrom a condiment called "caviare," clear and beautiful as jelly, and which he sends to Europe, where it is esteemed a great luxury.—The sturgeon is not, as many suppose, a fresh water fish; they go up the rivers to spawn.

Distances of Routes to California.

The following are the distances of four routes from this city to California, furnished by Lieut. Maury to the Honduras Inter-oceanic Railway Company:

From New York to San Francisco, via Panama, ...	5,200
Ditto . . . via Nicararagua,	4,700
Ditto . . . . . Honduras,	4,200
Ditto Vera Cruz and Tehuantepec,	4,200

No allowance is made in the above for the distance across the continent.

Silver Pointed Lightning Rods.

The Livingston County "Republican" of the 29th ult., states that the house of Mr. Cushing, about a mile north of the village of Geneseo, in that connty, was struck by lightning during a storm on Thursday the 22d. What is singular in the case, the house was protected by three silver pointed lightning rods of most approved construction, which rods, it seems, afforded no protection.

The Divining Rod.

R. Chisholm, in a letter to the Charleston "Mercury" (S. C.) asserts that good water was found for him by a "divining rod," by a person who came to his place for that purpose, in nine spots, where no water fit for any good purpose ever could be found previously. He states that he once had no faith in "Bletonism," but it would be folly for him to disbelieve any longer.

Flying.

We have received a communication from J. W., of Pa., who asserts that he has watched vultures in their flights, with great attention, with the naked eye and with a telescope, and he never saw one, according to J. B. C., "sail slowly through the air for many minutes without flapping its wings."

Peat for Fuel.

The Waterbury "American" says that two beds of peat have recently been discovered about two miles from that city, and that two joint stock companies have been formed, with abundant capital, for the purpose of supplying it as a fuel for market.

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TO CORRESPONDENTS.

E. E., of Ohio.—You call our attention to an error published some time since in this column, in regard to the movement of a carriage wheel. We stated that the top and bottom moved with the same velocity, which is incorrect. The error in question resulted from the omission of the word "not" in the paragraph, and it escaped our attention until some correspondent wrote us in regard to it.

E. W., of Ind.—What do you mean by "a double box lay." Is it one with two shuttle boxes. Looms with three shuttle boxes are very common, and we have seen one with four.

I. C., of Ill.—To strain an upright saw by means of a spiral spring, is an old invention.

J. P. N., of N. Y.—An experiment would determine your enquiry much more satisfactorily than we can answer it.

I. E. W., of Iowa.—Your alleged improvement in eccentric lathes contains no new motions, neither can we discover in it any particular combination which is patentable. Your contrivance for a hand car to run on common roads and across streams, we consider impracticable.

J. W., of C. W.—A Parker wheel, we believe, as you suggest, is about the best you could employ.

J. McK., of Troy, N. Y.—We are doubtful of the obtaining a patent. If he wishes to apply, he must first make a model—the smaller and neater the better, and send it with the Patent Office fee to us.

B. C. Jr., of N. Y.—We do not know how much journeymen millwrights are paid per day, in the South, and therefore, we cannot advise you in regard to the propriety of your going there.

C. C., of Pa.—Several inventions have been made in machines for paper folding. If you wish our opinion as to the novelty of a contrivance of your own, for the purpose, send a sketch and description of it.

W. L. S., of S. C.—The mere idea of forcing water through pipes into a tank or reservoir by a screw, is not a novel idea. An apparatus like this is illustrated in Ewbank's Hydraulics, and is an old invention.

L. P. S., of Ct.—Your apparatus for cutting Osage Orange hedges appears to contain some novelty. It is impossible to say whether it would answer the purpose or not.

M. C., of N. Y.—It is perfectly nonsensical to undertake to bolster up Ericsson's scheme by such flimsy statements as you have advanced. A man can make thousands of assertions and not be able to prove one. Our course in relation to the matter has been plain and straightforward, and we have nothing to take back. It is now asserted that he has abandoned hot-air altogether, and if this is true, certainly our arguments against its use have not caused it—it is the defect of the system itself. Ericsson is an ingenious man and we are sorry that he has not had a more plausible field for its exercise.

A. J. G., of St. Louis.—Neither you nor any other person ever saw an article recommended by us, in the Sci. Am., embracing any feature of your machines as a perpetual motion. As the power which produces your vacuum is applied, let us call it A, and as the vacuum obtained, which is an exponent of the pressure of the atmosphere is equal to it, let us call it B, therefore A is equal to B. As water is a motive agent, every fire engine, on the principle set forth by you, should be a perpetual motion. All your calculations are made on wrong premises.

J. F., of Pa.—There is no match machine described on page 140, Vol 8. For information about such machinery apply to William Gates, Jr., Frankfort, N. Y.

W. C. C., of Mo.—You cannot use without his permission anything which Mr. Allen claims in his patent. First study well his claim until you understand it, and then you will be able to apply your improvement with a full knowledge of the extent of his patent. Don't undertake to see how near you can approach his patent without infringing it, but keep as far from it as you can.

G. M., Jr., of Ill.—Your method of ventilation, so far as we can judge, is new and patentable. It is more simple than the original plan.

G. S. H., of N. B.—We suppose the Scientific American would reach more of the class of manufacturers alluded to in your letter than any other journal.

T. H. B., of Me.—Your improvement in brushes for scouring, etc., appears to be on an entirely new plan. You had better send us a model of it. It must be a decided luxury to have a hydraulic tooth brush operating so efficaciously as you describe.

J. S. S., of Md.—You cannot claim damages for the use of an invention by other parties previous to the granting of the patent. All use subsequent to its issue, would be an infringement, and damages could be sustained.

J. S. C., of Texas.—You cannot so well dispose of your invention until it is secured by patent. There are very few who will purchase under such circumstances. Cannot you procure the aid of some one to advance the patent fee—some one who is acquainted with you? This is often done, and is in reality your only hope.

E. F. F., of Vt.—Do not be afraid of making experiments. Your letter is so worded that we do not understand your question "about printers ink resisting coloring matters." Printers ink is made with lampblack and oil boiled for a long time and partly burned.

J. R. L., of Tenn.—Prof. Page's engine is composed of a number of hollow electro-magnets, not a continuous one. Daniel Davis, No. 428 Washington street, Boston, is the manufacturer, to whom you refer. You may depend upon it, that such an engine cannot compete, in the present state of electro-chemistry, with a steam engine.

E. C., of Vt.—Several machines for pegging boots and shoes have been patented. See last week's Scientific American.

Money received on account of Patent Office business for the week ending Saturday, July 22:—

B. H. W., of Mo., $60; F. B. H., of Ind., $25; E. C. F., of Ct., $55; W. T., of Ct., $25; N. C. S., of Ct., 25; J. G. C., of Mass., $20; E. M., of Va., $25; B. & W., of Mass., $25; J. T. B, of Pa., $30; W. H. E., of N. Y, $140; B. D., of N. Y., $30. J. A. G., of Mich., $10; F. B., of Vt., $30; H. F. B., of Ind., $30; R. H. T., of N. Y., $50.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, July 22:—

W. T., of Ct.; S. H. S., of Texas; E. M., of Va.: E. C. F., of Ct.; W. H. W., of Pa.; J. T. B., of Pa.; E. & R., of N. Y.; R. C., of S. C.

ADVERTISEMENTS.

Terms of Advertising.

4 lines, for each insertion,	75 cts
8 "	$1 50
12 "	$2 25
16 "	$3 00

Advertisements exceeding 16 lines cannot be admitted; neither can engravings be inserted in the advertising columns at any price.

☞ All advertisements must be paid for before inserting.

UNITED STATES PATENT OFFICE,
Washington, July 19, 1854.

ON THE PETITION of Ross Winans, of Baltimore, Md., praying for the extension of a patent granted to him on the 26th day of November, 1840, for an improvement in "the mode of regulating the waste steam in locomotive steam engines," for seven years from the expiration of said patent, which takes place on the twenty-sixth day of November, eighteen hundred and fifty-four.

It is ordered that the said petition be heard at the Patent Office on Monday, the 13th of Nov. next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing. All testimony filed by either party, to be used at the said hearing, must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 3rd of Nov.; depositions and other papers relied upon as testimony, must be filed in the office on or before the morning of that day; the argument, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Pennsylvanian, Philadelphia, Pa.; Scientific American, New York; Post, Boston, Massachusetts, and Inquirer, Cincinnati, Ohio once a week for three successive weeks previous to the 13th day of Nov. next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S—Editors of the above papers will please copy, and send their bills to the Patent Office, with a paper containing this notice. 46 3

TO MANUFACTURERS AND MECHANICS—The Kentucky Mechanic's Institute will open its annual exhibition in Louisville, on Tuesday, Sept. 26, 1854.

The Committee on Exhibitions respectfully extend an invitation to the Manufacturers and Mechanics of the Union to exhibit articles of their manufacture, and would call their attention to the many facilities afforded for the advantageous display of all articles sent for exhibition. A steam engine, with shafting, has been provided, to exhibit working models of machinery in motion. Previous satisfactory results have proved exhibitions of this kind to be of the utmost utility, and and from present assurances there is every reason to believe that the coming exhibition will not be inferior to any held in the West, and will be calculated to promote, in an eminent degree, the advancement and best interests of the arts and manufactures throughout the country. For further particulars address F. W. Vogdes, Secretary, at Louisville, Ky. C. L. STANCLIFF, 1 President.

HARTSON & CO.'S CELEBRATED TURNING Lathes, Planing and Drilling Machines—Having added extensively to our facilities, we are now prepared to execute orders for the above at short notice; also manufacture to order all tools used by machinists and engine builders. We now have on hand, ready for delivery, the following: Planing Machines, one to plane 25 feet long by 5 feet square; one 20 ft. by 3 ft.; one 18 ft. by 3 ft.; one 16 by 3 ft.; two 8 ft. by 30 in.; two 6 ft. by 25 in.; two 4 ft. by 22 in. Turning Lathes with screw gearing complete: one 22 ft., shears 42 in. swing; one 16 ft. 42 inch swing; two 20 ft. 26 inch. swing; one 13 ft. 26 inch swing; one 18 ft. 22 inch swing: also three vertical suspension drilling machines. The above are all made in the best possible workman-like manner and of the best material. G. B. HARTSON & CO., Globe Works, foot of 3rd street, North River, N. Y. 46 4*

HENCK'S FIELD BOOK FOR ENGINEERS—Second Edition. D. APPLETON & CO., 346 and 348 Broadway. Just Published. Field Book for Railroad Engineers—Containing Formulæ for laying out Curves, Determining Frog Angles, Leveling, Calculating Earth Work, &c., &c., together with tables of Radii, Ordinates, Deflections, Long Chords, Magnetic Variation, Logarithms, Logarithm and Natural Sines, Tangents, &c., &c. By John B. Henck, A. M., Civil Engineer, one vol., pocket book form. Price $1,75. The first edition of 1,000 copies of this Work was sold off in four weeks, a sale almost unprecedented in works of this class. The Publishers have received letters from the following eminent Professors and practical Engineers, who commend it as the best practical elementary work on the subject of American Railroad Engineering:—Prof. D. H. Mahan, West Point; Prof. M. M. Gillespie, Union College; Prof. H. E. Eustis, Lawrence Scientific School; Prof. B. F. Greene. Rensselaer Polytechnic School; Prof. J. T. Benedict, New York Free Academy; W. J. McAlpine, State Engineer: E. S. Chesbrough, City Engineer, Boston; S. M. Felton, Philadelphia; G. W. Whistler, New Haven Railroad; Wm. E. Worthen. New Haven Railroad. 46 3

WARNER'S TURBINE WATER WHEEL—These wheels are now made at the Wareham Manufacturing Co.'s Works, Wareham, Mass. They are too well known in New England to require any description: they are made of cast iron, with steel buckets firmly cast into the rims—a great improvement over cast-iron buckets in point of strength and economy of water: are not affected by back-water or ice. They are equally adapted to all manufacturing purposes. Parties wishing further information will be furnished with certificates, &c., by addressing J. WARREN, Wareham, Mass. 46 2*

PEASE'S IMPROVED MACHINERY and Burning Oil will save fifty per cent. and will not gum. This oil possesses qualities vitally essential for lubricating and burning found in no other oil. It is offered to the public upon the most reliable, thorough, and practical test, on every class of machinery, by our most skillful engineers and machinists, who pronounce it not only superior and cheaper than any other, but the only oil that is in all cases reliable, and will not gum. It has been practically tested in the office of the Scientific American, and pronounced "superior to any other which they have ever used." Manufactured and for sale in quantities to suit, only by the inventor, F. L. PEASE, Oil Manufacturer, 61 Main st., Buffalo, N. Y.

N. B.—Reliable orders for any part of the United States or Europe filled immediately. 1

WOOLEN FACTORY AT AUCTION—A Woolen Factory on a good water power, situated in Burlington, Racine Co., Wis., with two sets of machinery of a superior quality, will be sold to the highest bidder at Milwaukie, at the office of Crampton & Dowe, on the 8th day of Aug. 1854, at 10 1-2 o'clock, A. M. Said factory is made of brick and stone, three and half stories high, and 70x36 feet. One set of said machinery will be sold separately. Said property will be sold without reserve. Terms at the sale

J. V. QUARLES, } Assignees.
M. FRINCK. }

Kenosha, Wis. 1*

FOR SALE, LOW.—The Patent of a Self-Unloading and Adjusting Hay Elevator. Patented May 30th 1854. Address, Horsham, Pa.

48 7* T. T. JARRETT, Patentee.

IRVING'S PATENT SAFETY CIRCULATING STEAM BOILER—For Stationary, Locomotive, and Marine Engines. These Boilers having been thoroughly tested by scientific experiment and practical use, are being rapidly introduced into every part of the United States. Their claims to superiority are fully supported by the united testimony of highly respectable parties, who have given them the most successful trials. The following are among the chief advantages of this Boiler: 1st. Great increase of heating surface, with diminution of bulk. 2nd. Economy of fuel—a saving of more than 50 per cent, being effected over other boilers. 3rd. Economy of space, compactness, and strength of form. 4th. Increased safety from explosion. 5th. Freedom from incrustation. Circulars obtained on application at the Company's Office. Boilers of any required power furnished on short notice. Rights negotiated for all parts of the United States, England, France, and Belgium. All communications promptly attended to.

W. F. PHELPS,
45 3 Sec'y Irving S. Boiler Co., 347 Broadway, N. Y.

HARRISON'S SUPERIOR GRAIN MILLS—Latest Patent of June 6, 1854.—The New Haven Mfg Co. having the right for said Mills, will keep a supply constantly on hand. A liberal commission paid to agents for sale of the same. For further information address New Haven Manufg. Co., New Haven Ct. 45tf

MARYLAND INSTITUTE.—Baltimore Seventh Annual Exhibition will be opened on the 18th September next, and close on the 16th of October. Circulars with rules and regulations, and any information required, will be promptly furnished by application to John S. Selby, Actuary of the Institute.

456* THOS. S WANN, Ch. Ex. Com,

MACHINISTS' TOOLS—Sbriver & Brothers, manufacturers, Cumberland, Md., have for sale various sizes of Planing Machines, Engine Lathes, Drills, and Hand Lathes. These tools are built in the best manner and have received the highest testimonials at the Ohio Mechanics Institute, and from railroad and other shops where they are in use. Full descriptions and price list furnished upon application to SHRIVER & BROS., Cumberland, Md. 45 3*

OIL FOR MACHINERY—Cumberland Brothers' Patent Metallic Oil and Grease may be obtained from the undersigned, who are the only manufacturers. An experience of five years, and increased facilities, will hereafter ensure the prompt filling of all orders. YOCKNEY & CO.,

Elizabetbport, N. J., office 67 Exchange Place, N. Y.

N. B.—We have no agent in New York, nor any other place of business than the above. 45 12*

REYNOLD'S DIRECT ACTION and Re-Action Water Wheel—This is one of the most simple, cheap, and efficient Iron Water Wheels now in use.—For description, cuts, &c., apply to SAML. B. LEACH, Agent, 60 Beaver st. N. Y. 45 13*

SUBMARINE ARMOR—For sale,—A complete suit, with the Pump and rescuing apparatus, in excellent order and ready for immediate use. Address GEO. C. HOWARD, Tool Builder and General Machinist, 18th street, below Market, Philadelphia. 44 4*

PARTNER WANTED.—In the foundry business, an old establishment, and in successful operation. Situated on a line of railroad, about 40 miles from Buffalo. This is a desirable offer. Address, if by letter, P. P., Box 27, Dunnville, C. W. 44 3*

BUFFALO MACHINERY DEPOT. JAMES W HOOKER, 36 Lloyd St., Buffalo, offers for sale all kinds of machinery, as follows: Engine Lathes, Planing Machines, Universal Chucks, Cast steel Borers, Drills, Leather and Rubber Belting, Packing and Hose Oils, Millstones, Portable and Stationary Engines, Boilers, and Machinery generally. 43 tf

PATENT ROCK DRILL.—The simplest, cheapest and best ever offered to the public. For information apply to A. B. ELY, Esq., Boston, Mass., agent of North American Rock Drilling Company. 43 3m

READING'S PATENT CORN SHELLER and Cleaner—capacity 200 bushels per hour. 9 first premiums awarded in the Fall of 1853. Patent Rights and Machines now for sale at the corner of 2nd Street and Pennsylvania Avenue, Washington, D. C. I challenge the world to produce its equal. Address personally or by mail. WILLIAM READING. 43 13*

THE EUROPEAN MINING JOURNAL, Railway and Commercial Gazette. A Weekly Newspaper, forming a Complete History of the Commercial and Scientific Progress of Mines and Railways, and a carefully collated Synopsis, with numerous Illustrations of all New Inventions and Improvements in Mechanics and Civil Engineering. Office, 26 Fleet Street. London. Price $6 1-2 per annum. 43

T. M. CHAPMAN'S PATENT SAW FILING Machine. The best known and without a rival. The subscriber offers for sale Territorial Rights, and also builds and sends machines wherever they may be wanted. T. M. CHAPMAN, Patentee, Old Town, Me. 40 10*

LEONARD & WILSON—No. 60 Beaver st, and 109 Pearl st, have constantly on hand and for sale a full assortment of Machinists' and Carpenters's Tools, embracing every variety of Engine and Hand Lathes, Iron Planing Machines, Mortising and Tenoning Machines, Wood Planers, &c. Also, leather Belting of all sizes made of the best oak tanned butts, stretched on powerful machines, riveted and cemented. 42 13*

PORTABLE STEAM ENGINES—The subscriber is now prepared to supply excellent Portable Engines, with Boilers, Pumps, Heaters, etc., all complete, and very compact, say 2, 2 1 2, 3, 4, 6, 8, and 10 horse-power, suitable for printers, carpenters, farmers, planters, &c., they can be used with wood, bituminous, or hard coal; a 2 1-2 horse engine can be seen in store, it occupies a space 5 feet by 3 feet, weighs 1500 lbs., price $240; other sizes in proportion. S. C. HILLS.

25eotf Machinery Agent, 12 Platt st, N. Y.

FAIRMAN & WILLARD'S BORING MACHINE, for boring car wheels. This is the best machine in use, and warranted to bore thirty wheels in ten hours, and bore them perfectly true. It is equally well fitted for boring Pulleys, Gearing, &c. Price $600, cash.

JAMES W. HOOKER,
43 4eow Buffalo Machinery Depot, 36 Lloyd St., Buffalo.

FOR RAILROADS AND MACHINE SHOPS. I am prepared to furnish at the lowest rates, the following Oils: Pure Refined Sperm, Solar, Sperm, and Engine Oil, for locomotives, &c. Refined Elephant Oil, for burning. Lard oil, No. 1, 2, and extra. Lubricating, Whale, and Resin Oil, for heavy machinery.

JAMES W. HOOKER,
43 4eow Buffalo Machinery Depot, 36 Lloyd St., Buffalo.

MACHINERY.—S. C. HILLS, No. 12 Platt-st., N. Y. dealer in Steam Engines, Boilers, Iron Planers Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's, and Law's Planing Machines; Dick's Presses, Punches, and Shears; Mortising and Tennoning Machines; Belting; Machinery Oil, Beal's Patent Cob and Corn Mills; Burr Mill and Grindstones; Lead and Iron Pipe, &c. Letters, to be noticed, must be post-paid.

27tfeow

EUROPEAN PATENTS.—MESSRS. MUNN & CO. pay especial attention to the procuring of Patents in foreign countries, and are prepared to secure patents in all nations where Patent Laws exist. We have our own special agents in the chief European cities; this enables us to communicate directly with Patent Departments, and to save much time and expense to applicants.

STAVE AND BARREL MACHINERY—HUTCHINSON'S PATENT.—This machinery, which received the highest award at the Crystal Palace, may be seen there in operation during the ensuing season. Cutting, Jointing and Crozing Staves and Turning Heads. Staves prepared by this process are worth to the cooper from 20 to 40 per cent more than when finished in another way. Applicable alike to thick and thin staves. Apply to C. B. HUTCHINSON & CO., Auburn, N. Y., or at the Crystal Palace. 34tf

KENTUCKY LOCOMOTIVE WORKS—Corner of Kentucky and Tenth streets, Louisville, Ky.—The proprietors of the Kentucky Locomotive Works would respectfully inform Railroad Companies and the public generally, that, having completed their establishment, they are now prepared to receive and execute orders with fidelity and dispatch. They will contract for Locomotives, Passenger, Baggage, Freight, Gravel, and Hand Cars, of every style and pattern, as well as all kinds of Stock and Machinery required for railroads. Particular attention will be paid to Repairing, for which they have every facility. They are also prepared to contract on favorable terms for building all kinds of Machine Tools, such as Turning Engines, Lathes, Planers, Drills, Slotting, Splining, and Shaping Machines of every variety of pattern. Having also a large Foundry connected with the establishment, orders for castings are solicited, and will be filled with promptness. Car Wheels of any pattern can be furnished on short notice. Double and single plate and Spoke Wheels of all sizes constantly on hand. Communications or orders must be addressed to OLMSTED, TENNEYS. & PECK, Louisville, Ky. 40 6m.*

PIG IRON—Scotch and American; also English Boiler Plate and Sheet Iron, for sale at the lowest market prices, by G. O. ROBERTSON, 135 Water st. cor. Pine, N. Y. 40tf

JOHN PARSHLEY, No. 5 and 7 Howard st., New Haven, Ct., manufacturer of Machinists' Tools, and Steam Engines, has now finishing off 25 Engine Lathes, 6 feet sheers, 4 feet between centers, 15 inches swing, and weighs about 1100 lbs. These Lathes have back and screw gear, jib rest, with screw feed, and the rest is so arranged that the tool can be adjusted to any point the work may require, without unfastening the tool, hence they possess all the good qualities of the jib and the weight lathe: they are of the best workmanship. Price of Lathe with count shaft and pulleys, $165 cash. Cuts, with full description of the lathe, can be had by addressing as above, post-paid. Also four 30 horse power vertical Steam Engines with two cylinders. Price of engine with pump and heater, $800 cash. For particulars address as above. 35tf

PATENT RIGHT FOR SALE.—We are ready to dispose of the Patent Right, (or any part of it) of the best Stone Drilling Machine now in use, or we are prepared to furnish working machines at very reasonable prices, these machines will drill from 1 to 7 inches in diameter, and 100 feet deep, and can be worked by Hand, Horse, or Steam Power, one machine performing the work of twenty-five men. For further particulars and circulars with cuts address JAS. T. WHITTEMORE, Agent American Manufacturing Co., 39 State street, Boston. 40 tf

FULTON FOUNDRY AND MACHINE WORKS S. W. corner of Green and Morgan streets, Jersey City, N. J. The subscribers are prepared to contract for Sugar Mills and Mining Machinery of every description. Horizontal Steam Engines of various sizes constantly on hand. All orders executed with promptness.

34 13* FIELDS, BROTHER & CO.

PALMER'S PATENT LEG—"The best appliance ever invented." Pamphlets containing the testimonials of the first American and European surgeons, and other information concerning this invention sent gratis to all who apply to PALMER & CO., Springfield, Mass.: or 376 Chesnut st, Philadelphia. 42 13*

NORCROSS' ROTARY PLANING MACHINE. The Supreme Court of the U. S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringement of the Woodworth Patent.

Rights to use N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS, 208 Broadway, New York.

The printed Report of the case with the opinion of the Court can be had of Mr. Norcross. 36 6m*

MACHINERY FOR SALE—The following machines are for sale at the "Scientific American" Office:—Alcott's Concentric Lathe, price $25.

Portable Mortising Machine, $20
Bushnell's Iron Drill, $25

All orders should be addressed (accompanied with the cash) to MUNN & CO., 128 Fulton st., N. Y.

MACHINISTS TOOLS—Power Planers 4 to 16 feet long, weight 1,000 to 10 000 lbs. Engine Lathes, 6 to 19 feet long, weight 1,700 to 8,400 lbs., swing 21 to 38 inches. Hand Lathes, Gear Cutters, Drills, Bolt Cutters, Slide Rests, Chucks, &c., of best materials and workmanship constantly on hand, and being built, also the best Grain Mills in the country, "Harrison's Patent." For cuts giving full description and prices address NEW HAVEN MANUFACTURING CO., New Haven, Conn. 38 tf.

WOODWORTH'S PATENT Planing, Tonguing, Grooving Machines.—Double machines plane both sides, tongue, and groove at one and the same time, saving one half of the time when lumber is required to be planed on both sides. Large assortment constantly on hand. Warranted to give entire satisfaction to purchasers. JOHN H. LESTER,

37 13* 57 Pearl st, Brooklyn, L. I.

ENGINEERING.—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic, Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc., etc.

CHARLES W. COPELAND,
35 tf Consulting Engineer, 64 Broadway.

PLANING, TONGUING, AND GROOVING—BEARDSLEE'S PATENT.—Practical operation of these Machines throughout every portion of the United States, in working all kinds of wood, has proved them to be superior to any and all others. The work they produce cannot be equalled by the hand plane. They work from 100 to 200 feet, lineal measure, per minute. One machine has planed over twenty millions of feet during the last two years, another more than twelve millions of of feet Spruce flooring in ten months.. Working models can be seen at the Crystal Palace, where further information can be obtained, or of the patentee at Albany, N. Y

27 3m GEO. W. BEARDSLEE.

STATIONARY STEAM ENGINES—The subscriber is now prepared to furnish, with or without pumps, boilers, &c., Horizontal Engines on iron bed frames, good strong, substantial, plain finished engines that will do good service, say from 4 horse, $215, to 30 horse, $1,037: they have Judson's patent valves, and will be warranted to work well. S. C. HILLS,

31tf 12 Platt st, New York.

A. B. ELY, Counsellor at Law, 52 Washington street, Boston, will give particular attention to Patent Cases. Refers to Messrs Munn & Co., Scientific American. 16 1y*

NOVELTY IRON WORKS—Manufacturing of Machinists' Tools: also Engine Lathes, with an improved Tool Rest, Lathes, and Iron Planers kept on hand: for sale by W. W. NICHOLS & CO., cor. B and Turnpike street, Boston, Mass. 41tf

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Scientific Museum.

Kerosene.

This is the name applied to a new liquid hydro-carbon recently obtained from bitumen. The discoverer, Dr. Gesner, of Williamsburgh, N. Y., has received letters patent for his new combination of matter, and operations are now in progress by a company in this city for the extensive manufacture of the valuable products of his invention.

Kerosene is readily separable during its distillation into three distinct varieties, distinguished by the patentee, as A, B, and C Kerosene. Each of these varieties possess different numbers of the equivalents of carbon and hydrogen and different and somewhat peculiar characters, and each has been the subject of a patent. Their densities and boiling points are as follows, viz.:

	Spec. gravity.	Boiling point.
A Keroseue	0·750	150° Fah.
B "	0·775	250° "
C "	0·800	350° "

The A Kerosene has one of the properties of benzole, namely, that of rendering common air, when passed through it or its vapor, a gas suitable for illuminating purposes. It was therefore at first taken for benzole, but recent investigations made by American and European chemists have proved that its specific gravity, boiling, and congealing points, chemical composition, &c., differ widely from those of benzole, or naptha. Its lower density and boiling point, and greater volatility, give the Kerosene a great advantage over benzole, which, in cold weather is certain to condense in the pipes conveying the air vaporized by it. On the other hand a gas light of great brilliancy is produced from the A Kerosene, and steadily maintained during the coldest periods of winter, and even when the gas pipes pass through ice.

Like the foregoing, the B Kerosene is a spirituous hydro-carbon; but it has a greater specific gravity and a higher boiling point. It is incapable of vaporising atmospheric air passed through it in a sufficient degree to afford light. It however gives a beautiful white light when consumed in a proper lamp.

The C Kerosene is an essential oil, which is also admirably adapted for lamps of proper construction. The three liquids are separated the one from the other, at one and the same distillation, and the yield even from bituminous rocks or shales is equal to forty gallons per tun, exclusive of a quantity of mineral tar, which is applied to the manufacture of a superior hydraulic cement and other useful purposes. The A and B Kerosene exercise but a feeble action on gutta percha and india rubber, while the C Kerosene is a perfect solvent for those substances.

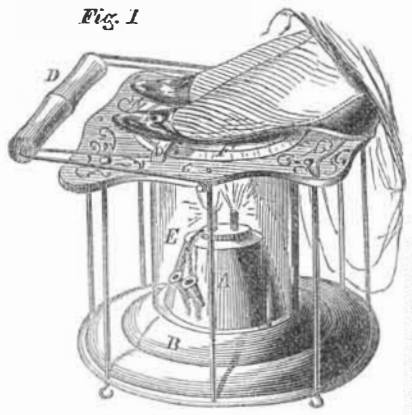
The peculiarities of these liquids are no doubt derived from the nature of the material subjected to manufacture and which is acted upon by cheap and powerful re-agents, and a peculiar mode of conducting the distillatory and decoloring processes, all of which are set forth in the specifications of each patent. Bituminous rocks of any kind, and such as have not heretofore been applied to any useful purpose, yield these liquids abundantly, producing cheap agents for illuminating purposes. They may be made and sold at much lower rates than any of the oils or burning fluids hitherto offered in the market. It is not yet known what further uses may be found for these new products. Dr. Gesner is still engaged in prosecuting the inquiry, and his own labors, or those of other chemists may discover still further applications for the liquid hydro-carbons he has produced.

Several machines have been invented or proposed for passing the air through the Kerosene to produce the Kerosene light. To light a room, a building, or a town, it is only necessary to wind up the machine in the manner of winding up a clock. The machine collects and distributes the air which is rendered a splendid illuminating gas by passing it through or over the surface of the Kerosene.

Combination Portable Stove and Lantern.

On the 11th of last April a patent was granted to Francis Arnold, of Middle Haddam, Conn., for the invention represented by the annexed figures, of which figure 1 shows its application as a foot stove, and figure 2 as a portable stove for boiling a kettle, &c.

Fig. 1



A is a lamp; B is the bottom plate of cast-iron, with a recess for the seat of the lamp; C is the top plate of cast-metal, and D D′ is a double handle which answers for a foot fender, as shown in figure 1, with the projecting heel support, G; E is a transparent mica case surrounding the lamp, B, and the underside of the top plate, C. It is therefore a portable stove and lantern. The various purposes for which this neat apparatus can be used, may be readily conjectured by every person. No further description of the parts is required. No one can misunderstand them. In cases of sickness it is a very useful apparatus to keep any needful drink warm, it can also be used for heating flat irons, and for this purpose can be kept in any chamber. To say anything more respecting

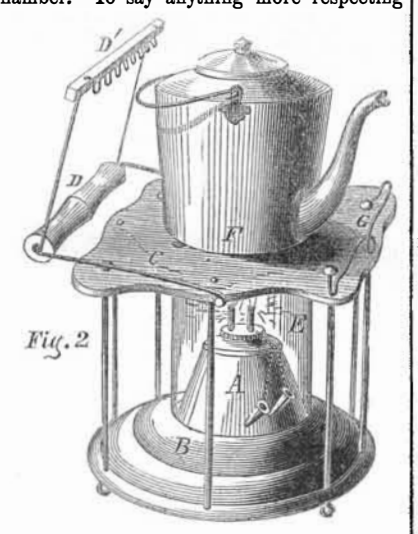


Fig. 2

its general adaptability to a hundred purposes, would just be telling what our readers can see at once for themselves.

More information may be obtained by letter addressed to the patentee at his place of residence named above.

To Extinguish Fires on Steamboats.

A. Walker, Supervising Inspector for the 9th District, under the new Steamboat Law, has directed the attention of the owners and agents of steamboats navigating the lakes, to the importance of extinguishing fires by steam, he says, "I most earnestly recommend that all steam vessels should be provided with a blow-off cock or valve, permanently attached to the boilers, with a rod or handle connected, and leading from the same, above the main deck, where it would be accessible at all times to the engineers and officers of the boat, so that in case fire communicates in the hold, as it generally does, this cock or valve may be opened in an instant, and allow steam to escape into the hold of the vessel, which is one of the most effectual means of extinguishing fire that has yet been discovered; and in nine cases out of ten would be the means of saving the boat, though badly on fire at the time it was discovered. The cost of pipe and attachment to boilers is but a small expense—not exceeding $30. It is one of the great safe-guards, and should be placed on all steam vessels, as their safety so much depends on some ready and certain means to check the flames in the outset, which steam will do most effectually, if allowed to find its way into any room, recess, or aperture where there is any fire. Many boats and propellers on the lakes have already adopted the same, or a similar plan, and some can bear testimony to the utility of such an auxiliary in the extinguishment of fire.

I would also respectfully invite the especial attention of engineers to this particular subject, believing all can appreciate the importance of having some ready and sure means to prevent further disasters by fire, thereby avoiding such scenes as have been enacted in past years, the contemplation of which is by no means pleasant to dwell upon."

Lime Water a Remedy for Diarrhea.

In a letter to the Charleston (S. C.) "Mercury," J. Lartigue asserts that lime water is an excellent remedy for the above disease. He does not claim it as something new, it being first suggested to his mind by reading Youatt, a writer on the "Horse." Mr. L. believes it is also good for cholera, for which he has tried it personally, with the following experience:

"The first case in which I tried it," he says, "was very interesting. The patient, a man about forty years of age, was taken with the most copious evacuations. He said that another would be his end. I thought so too, as the last, and several of the preceding were very violent. I gave him a half pint of the solution of quicklime, as strong as the unslaked lime would make it, but perfectly clear of the sediment. He had scarcely swallowed it before he began to sneeze violently, and said that he was frying in his stomach. He never had another operation—no fever, and was well in half an hour, except as to debility. I have had occasion to try it this summer with similar success. In one case it was checked too soon, and produced fever, but the patient soon recovered of that.

I am no advocate for quack medicines, nor am I a believer in panaceas; but I believe this remedy can be accounted for on chemical principles."

Cure for Cholera,

The "Boston Medical and Surgical Journal" recommends for cholera attacks, a prescription as follows:—Laudanum, two drachms; spirits of camphor, one drachm; sweet tincture of rhubarb, four drachms; aqua ammonia, (hartshorn,) half a drachm; oil of peppermint, 15 drops. Take a teaspoonful in hot sweetened water every fifteen minutes, to allay the vomiting and pains.

Cure for the Venom of Snakes and Insects.

A correspondent of the N. Y. "Tribune," signing himself "Old Physician," asserts that the virus of snakes, &c., is "Prussic Acid," and states that the antidote for it is spirits of hartshorn (ammonia). After a person is bitten he recommends a few drops applied to the wound, and 20 drops drank mixed with a little water and whiskey. This dose is to be taken every ten or twenty minutes, until profuse perspiration is produced, when all the symptoms of the poison, he asserts, will disappear. This antidote, he says, is perfect and unfailing, and every person is advised to carry it with him, whenever he goes among venomous reptiles, &c.

This remedy is not new, but is old and well known, and perhaps is very good, but we are not acquainted with a single case of its successful use, although we have often heard its efficacy spoken of.

Vandalism.

The English Consul at Jerusalem publishes a letter denouncing a Yankee named Jones, who lately sojourned in the Holy City, and turned a penny by chipping off with a hammer pieces of the "Holy Sepulchre," the "Tombs of the Kings," and other famous monuments, and selling them to travelers at pretty high prices, to be carried home. The Consul adds that "it is notorious throughout the East that a similar propensity is chargeable peculiarly to travelers from the United States." This is particularly just, considering that the British Museum has been enriched by such robberies.

It is also believed that the said Consul, through spite, has made an overt charge. Mr. McGreggor, the Secretary for the Association for Converting the Jews, in this city, denies the whole allegement, against Mr. Jones.

Seasonable Advice.

Use chloride of lime freely if the premises or vicinity of your house is impure. If bedbugs annoy you destroy them with corrosive sublimate, beaten up in the white of an egg, and paste it on the wood-work infested. If roaches abound, moisten and sweeten bread crumbs or boiled potatoes, mix red lead with them, spread on sheets of paper, and scatter them about in the evening to be gathered up in the morning. If rats or mice be the pests, use good traps. In poisoning them you may poison greater folks, and if you do destroy them in this way, you create bad odors in the house.

Pearl Fishing.

A party of gentlemen, from Wilmington, Del., visited Havre de Grace, a few days since, to witness the operations of the diving bell, preparatory to the formation of a company to engage in the pearl fishery. Thirty-five thousand dollars were subscribed, which is to be increased to fifty thousand. When organized, an expedition is to be sent to the coast of Mexico, to commence operations.

LITERARY NOTICES.

BIBLIOTHECA SACRA.—The July number of this expositor and repository of New England theology, published at Andover, Mass., by G. W. F. Draper & Bro., contains seven original articles on different subjects, and a considerable amount of miscellaneous matter. The first article in it, is the account of an excursion from Damascus to Yabrudd, by the Rev. J. L. Porter, Missionary at Damascus, which is very interesting, but the one that has attracted our attention most, is the second, on "Druidism," by Rev. E. D. Morris, of Auburn, N. Y. This review is second to none other in the world.

OLD EBONY.—The last number of Blackwood's Magazine, republished by Leonard Scott & Co., No. 79 Fulton st., this city, is as usual rich racy, and pungent. It contains nine original articles, one of which, "The recent growth of the United States," should be read by every American; it is worth the whole price of the magazine.

PUDDLEFORD AND ITS PEOPLE.—By H. H. Riley. With illustrations. 12 mo. pp. 289. Samuel Hueston, 348 Broadway.—This is one of the best written amusing books we have read for some time. Puddleford was a new village, located in the far West, and its inhabitants composed every variety of character necessary to form a western village. The houses were built of logs, they had a tavern and a Justice of the Peace—the Squire did all the law business of the town. He lived in a frame house, the only one in Puddleford, and that was never finished. For a book of fun and truthfulness in portraying western life, we have read nothing which has pleased us more for some time.

CHAMBERS' JOURNAL.—For August, has been sent us by P. D. Orvis, No. 130 Fulton St. It contains several interesting chapters, the more entertaining being the remarks of Wm. Chambers concerning New York.

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